OS 102

# Bulletin of the British Ornithologists' Club

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## FORTHCOMING MEETINGS

See also BOC website: **http://www.boc-online.org**

MEETINGS are open to **all**, not just BOC members **and are free**.

**Evening meeting** in Tower Rooms, Section A, Sherfield Building, Imperial College, South Kensington, London, SW7 2AZ. The entrance is opposite the Queen's Tower in the main quadrangle. The nearest Tube station is at South Kensington. For maps, see: http://www3.imperial.ac.uk/campusinfo/southkensington

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**11 October at 6.00 pm—Rachel Bristol—*Back from the brink: translocations of threatened endemic birds in the Seychelles***

*Abstract*: Following initial failures in the 1970s, translocations (reintroductions and conservation introductions) of threatened endemic birds have more recently had great success in increasing the numbers, range and conservation status of five of eight Seychelles threatened endemic bird species. Methods have been refined with time and trial and, although still learning, we now have consistent translocation success. Keys to success in Seychelles have been: ensuring all of the species' habitat requirements are provided in the new environment (e.g., habitat rehabilitation prior to release, predator management, provision of nest boxes), translocating only wild birds, and tailoring the release methods to the species.

*Biography*: Rachel Bristol has worked for the last 20 years to conserve threatened endemic birds in New Zealand, Hawaii, Mauritius and, for the past 14 years, the Seychelles, where she has led several avian conservation introductions. She is currently undertaking a Ph.D. in the ecology, conservation genetics and restoration of the Seychelles Paradise Flycatcher *Terpsiphone corvina*, and a comparison of the evolutionary history of Indian Ocean flycatchers, at the Durrell Institute of Conservation and Ecology, University of Kent.

**The evening will commence with the talk beginning at 6.00 pm.** After the talk the cash bar will open so that attendees can socialise. At approximately 7.30 pm there will be a light buffet supper (sandwiches etc.) costing **£15 per person** for those who have ordered it at least two weeks in advance. Vegetarian and gluten-free options will be available for those who have requested them when booking.

*Those wishing to order the buffet supper should apply to the Chairman (address below) by* ***27 September 2011.***

*There is* ***no charge*** *to attend the talk but to comply with Imperial College requirements those wishing to attend must notify the Chairman no later than* ***Monday 10 October 2011.***

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**One-day joint meeting with NBC and NHM in the Flett Theatre, Natural History Museum, London SW7 5BD.** The nearest tube station is at South Kensington and attendees should use the NHM entrance on Exhibition Road.

**Saturday 29 October 2011—*Birds of South and Middle America—recent advances in knowledge***

The full programme, with abstracts, was advertised under Club Announcements in the June Bulletin and is also available on the website.

Nathalie Seddon—Why birds sing at dawn

Huw Lloyd—Conservation of high-Andean forest birds in Peru

James Lowen—Wildlife of the Pantanal, South America's Serengeti

Adolfo Navarro—The Mexican Bird Atlas: a collaborative approach to the study of biodiversity

Robert Prŷs-Jones—Project BioMap: documenting the global museum resource of Colombian birds for research and conservation

Thomas Donegan—Exploring, studying and protecting the world's most diverse national avifauna (Colombia)

Access is possible from 10 am, the meeting will begin at 10.30 am with coffee/tea and the first talk at 11 am. There will be an hour's break for lunch and the afternoon session will start at 2.15 pm. The symposium will end at 5 pm.

*Those wishing to order a* ***sandwich lunch costing £10*** *should apply to the Chairman (address below) by* ***Thursday 13 October 2011.***

*There is* ***no charge*** *to attend the symposium but, in order to order coffee/tea, those planning to attend are asked to notify the Chairman no later than* ***Thursday 20 October 2011.***

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The Chairman: Helen Baker, 60 Townfield, Rickmansworth, Herts WD3 7DD UK. Tel. +44 (0)1923 772441. Email: helen.baker60@tiscali.co.uk

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Bulletin of the
BRITISH ORNITHOLOGISTS' CLUB

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# CLUB ANNOUNCEMENTS

### Chairman's message

Committee decided in June that the time had come to raise the annual subscription to £25 as from 1 January 2012. By that time subscription rates will have remained unchanged for five years, yet Bulletin production costs have increased. We are also planning more colour in the Bulletin to further enhance its appeal. New Standing Order forms will be distributed shortly.

We have two more meetings this year. The first is an evening meeting on Tuesday 11 October at Imperial College and the second is our joint meeting with the Neotropical Bird Club (NBC) and the Natural History Museum (NHM), on Saturday 29 October, in the Flett Theatre at the Natural History Museum. The full programme appeared in the June Bulletin and further details are on the inside front cover and on the enclosed flyer.

Members may be interested to know that on Friday 28 October a symposium is being held in the Flett Theatre to celebrate the life and legacy of Charles Davies Sherborn (1861–1942). He was the first President of the Society for the History of Natural History (SHNH) and singly-handedly compiled the *Index animalium*. This 11-volume work became the core reference for zoological nomenclature. The symposium is being organised by the Linnean Society of London, SHNH, the International Commission on Zoological Nomenclature, the Natural History Museum and the Biodiversity Heritage Library. To register, contact Gina Douglas at meetings@shnh.org.uk or check www.shnh.org.uk for details.

*Helen Baker*

## ANNUAL GENERAL MEETING

The Annual General Meeting of the British Ornithologists' Club was held in Room SALC 3, Sherfield Building, Imperial College, London SW7 2AZ, on Tuesday 14 June 2011 at 5.40 pm with Miss H. Baker in the chair. Fifteen members were present (including eight from the committee). Apologies were received from Cdr. M. B. Casement, RN, Mr S. E. Chapman, Mr E. C. Dickinson, Mr F. M. Gauntlett, Mr S. M. S. Gregory and Mr G. M. Kirwan.

**1. Minutes of the previous meeting.** The Minutes of the 2010 AGM held on 27 April 2010, which had been published (*Bull. Brit. Orn. Cl.* 130: 73) were approved and signed by the Chairman.

**2. Chairman's report.** The Chairman referred members to her review, the Trustees' Annual Report and the Annual Accounts, which were combined in one document and had been available in the room before the start of the meeting. She thanked Committee members for their contributions and support over the last year and reminded members that more volunteers are needed to help with the running of the Club. In particular the Club was looking for a member to take over the *Hon. Treasurer* role.

**3. Trustees' Annual Report taken with item 4, the Bulletin, and item 5, Publications report.** The Chairman apologised for omitting reference to Lincoln Fishpool's talk in the section of the Trustees' Report dealing with Club meetings. The *Hon. Secretary*, referring to the Trustees' report, reported that there had been a good programme of talks but attendance had been disappointingly low on several occasions. Vol. 130 of the Bulletin contained many interesting papers covering a wide geographical area and the increasing use of colour made it an attractive publication. The year had seen the publication of the first issue of *Systematic Notes on Asian Birds (SNAB)* by the BOC. He invited Dr D. R. Wells, the editor, to say a few words about the publication. Dr Wells said that sales were largely dependent on reviews and it would be some 18 months before all the reviews were published. However, early reviews had been favourable.

Revd. T. W. Gladwin presented the JPC Report for 2010. He said that he had decided to stand down after 11 years chairing the Committee since its inception. It was quite a busy role and it seemed an opportune time to hand over during a pause in the publication stream and printing techniques were changing dramatically. He hoped that the BOC would continue to further good relations with the BOU and with the Trust for Oriental Ornithology in the interests of best serving ornithology.

The *Hon. Treasurer* drew attention to the income and expenditure details, which showed a £5,080 shortfall of income over expenditure. Subscription income and investment income had both fallen and

income from sales was down on 2009 because there were no new joint BOC/BOU publications in 2010. Expenditure for the year of £32,188 was slightly less than in 2009. He proposed the adoption of the Report and Accounts, and this was seconded by the Revd. T. W. Gladwin.

**6. Election of Officers.** The Chairman proposed that Dr R. P. Prŷs-Jones be elected as *Hon. Secretary*, Mr D. J. Montier be re-elected as *Hon. Treasurer*, Mr D. J. Fisher be elected as *Vice-Chairman* and Mr R. R. Langley be elected to serve on the Committee in place of Mr S. A. H. Statham. This was seconded by Mr N. J. Redman. Ex-officio members are appointed by the Committee.

**7. Any Other Business.** The Chairman formally thanked Revd. T. W. Gladwin for all the work he had done for the Club over the years, particularly in his role as Chairman of the JPC. She called on Mr D. J. Montier, who had served on the JPC for the entire period to say a few words of appreciation.

The meeting closed at 6.00 pm.

The Chairman's review, Trustees' Annual Report and the Accounts are available on the BOC website (www.boc-online.org) and hard copies can be obtained from the *Hon. Treasurer*, D. J. Montier, Eyebrook, Oldfield Road, Bickley, Bromley, Kent BR1 2LF, UK, e-mail: djmontier@btinternet.com

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The 966th meeting of the Club was held on Tuesday 14 June 2011 in the Sherfield Building, Imperial College, South Kensington, London SW7 2AZ. Nineteen members and seven non-members were present.

Members attending were: D. ALLEN, Miss H. BAKER (*Chairman*), D. J. FISHER, Dr L. FISHPOOL, F. M. GAUNTLETT, Revd. T. W. GLADWIN, D. GRIFFIN, K. HERON JONES, R. R. LANGLEY C. F. MANN, D. J. MONTIER, R. C. PRICE, Dr R. P. PRŶS-JONES, N. J. REDMAN, P. J. SELLAR, S. A. H. STATHAM, C. W. R. STOREY, M. J. WALTON and Dr D. R. WELLS.

Non-members attending were: J. BOORMAN, N. CHESHIRE, Mrs M. H. GAUNTLETT, Mrs J. GLADWIN, Mrs J. HERON JONES, Mrs M. MONTIER and D. RUSSELL.

A series of short talks was presented, starting with Nigel Redman, who first discussed *What is Sharpe's Lark?* In 1896 D. G. Elliot collected a lark in British Somaliland that he described as *Mirafra sharpii*. It was later subsumed within Rufous-naped Lark *M. africana*, a widespread species whose races range from pale to dark, although none is as rufous as *sharpii*. In 1918–20 Sir Geoffrey Archer collected a further 14 specimens in Somaliland, mostly on the Tuuyo Plain where it apparently overlapped with the very similar Somali Lark *M. somalica*. Whilst Somali Lark's range extends east from here, Sharpe's extends west to the Ethiopian border. There have only been a handful of sightings of Sharpe's Lark since, and the taxon is recorded from only six squares in *Birds of Somalia*. It inhabits open grassy plains within open dry woodland, but the nest has never been found and no photographs or sound-recordings exist. Sharpe's Lark is surprisingly similar to Somali Lark, both being very rufous overall (Somali Lark is slightly paler). The key consistent differences are bill length (short in Sharpe's, usually much longer in Somali), outer tail colour (buff in Sharpe's, white in Somali) and hindclaw length and shape (shorter than hind toe and strongly arched in Sharpe's, and longer than hind toe and almost straight in Somali). Furthermore, Somali shows more spotting on the undertail-coverts. Their similarity raises the question of whether Sharpe's Lark might be a race of Somali Lark rather than Rufous-naped Lark, but the differences, though subtle, do seem too marked, especially the hindclaw. It therefore seems best to treat *sharpii* as a species for now. It is disconcerting that the first bird tours to Somaliland in 2010 found Somali but not Sharpe's Lark on the Tuuyo Plain. We can only hope that this interesting taxon has managed to cling on somewhere in north-west Somalia (or in eastern Ethiopia).

Nigel went on to consider *Species, races or morphs: taxonomic confusion in the Tropical Bonbon complex*, in a talk that further considered issues raised by Turner *et al.* (*Bull. Brit. Orn. Cl.* 131: 125–128) in relation to a recent molecular study (Nguembock *et al.*, *Mol. Phyl. & Evol.* 48: 396–407). Turner *et al.* reported that the black 'morph' of *Laniarius* (*aethiopicus*) *sublacteus* in coastal Kenya lives side by side with black-and-white *sublacteus*, and they apparently behave as separate species. The situation in southern Somalia is not well known, but the black morph of *L.* (*a.*) *erlangeri* reportedly calls very differently from normal Tropical Boubous. Turner *et al.* overlooked that Nguembock *et al.*'s study did in fact sample the black 'morph' of *erlangeri* and therefore it is this bird that is more distantly related to other black-and-white boubous. Nigel suggested that the all-black Somali and Kenyan birds must be synonymous, but *L. erlangeri* is inappropriate as the Kenyan birds were named *L. nigerrimus* in 1879, 26 years before *erlangeri* was described. This 'new' species requires an English moniker and Reichenow's name Black Boubou seems sensible. But the question remains, what are the black-and-white birds in the Jubba Valley in southern Somalia? It would be logical for them to be *sublacteus*, but the Somali birds often show a short wingbar, which *sublacteus* lacks. However, three of 30 adult *sublacteus* in Tring had some white feathers on the shoulder, so there is clearly some variation. Until a fuller genetic analysis is made, including all relevant taxa, we can only speculate.

Clive Mann spoke on *Two tropical cuckoo problems*, starting with plumage coloration in Large Hawk-Cuckoo *Hierococcyx sparverioides*. This species ranges from the Himalayas to southern China and South-East Asia, with small numbers from northern populations migrating to the Philippines and Greater Sundas. It breeds at 900–3,500 m, but migrants occur to sea level. Five unusually plumaged specimens (four male, one unsexed) at Tring were collected between 1863 and 1915 in Burma (four) and Thailand (one), from three localities near sea level, one at 1,500 m and one untraced. Four were taken in October–January, but that

from the untraced locality in August. They differ in being silvery grey above (usually blackish brown), with a chestnut throat and the barring below much paler and more rufous. Although one collector remarked on the silvery colour in his notes, nothing appears to have been published on this plumage. Clive initially thought they represented an undescribed taxon, but the plumage differences could have resulted from a simple genetic mechanism, perhaps just one mutation, causing the dilution of melanin pigments. Such a variant, referred to as 'pastel', is known in other birds. On this basis he considered it more logical to view them as a morph of *sparverioides*. The dates suggest that they could be wintering birds, although August is perhaps anomalous, but if they are where did they come from?

Clive then discussed the Oriental Cuckoo *Cuculus* (*saturatus*) *optatus*, which breeds from European Russia east to Japan. It migrates to southern Asia and Australasia, with vagrants recorded in the Pacific and North America, and twice in Israel. An hepatic morph female *Cuculus* collected by Boyd Alexander in December 1898 in Zambia is in the Tring collection, with the African Cuckoos *C. gularis*. It was originally labeled *C. canorus*, but in Clive's opinion is obviously different to both *gularis* and *canorus*, notably in the rump / uppertail-coverts. The former species has much grey amongst the rufous and dark brown barring, whereas the latter generally has an almost unmarked rufous rump, although juveniles may have dark brown barring as in the Boyd Alexander specimen, but have narrow whitish fringes to the feathers (lacking in the specimen in question). He found it difficult to distinguish it from *optatus* (*saturatus* is extremely similar to *optatus*, but smaller) and provisionally considers that the specimen represents the sole record of Oriental Cuckoo in Africa.

David Fisher presented *The first-ever photographs of Nkulengu Rail?* Whereas in former years members commonly exhibited 'novelties', i.e. specimens of potentially new taxa, David showed what he believed to be the first-ever 'consciously taken' photographs of Nkulengu Rail *Himantornis haematopus*, of a bird in Ghana on 9 May 2011 (two poor photographs taken by automated camera traps can be seen on the internet). This species, whose range stretches from West Africa to Uganda, is loudly vocal pre-dawn and post-dusk, and in one recent field guide is described as sounding like a 'dancing conga-line going through the forest'! The species is notoriously hard to see but, as the camera trap photos prove, it is active by day as well as at night. This rail is considered to be the sole member of its own subfamily, based primarily on its skeleton, which is much closer to the South American trumpeters (Psophiidae). Unlike other rails, juveniles possess highly patterned down. Compared to illustrations in books, David's photographs differed primarily in the bare-part colours. The legs are usually painted (correctly) as bright red, but the bill as uniform grey or uniform black, whereas in life it is silvery blue with a lime-green base. The lores are usually painted grey or black, whereas they are greyish blue in life. Presumably these discrepancies are due to illustrations being based on skins in which the colours have faded. The photographs will shortly be made public via several websites and elsewhere.

Douglas Russell's talk was entitled *Con artist or unfairly maligned collector?—the rediscovery of William Farren's Black Woodpecker eggs from the New Forest*. The status of Black Woodpecker *Dryocopus m. martius* in Britain and Ireland has long been controversial. The last review, by the BOU Records Committee (*Ibis* 137: 590–591) considered 110 alleged records, but unanimously concluded there was no unequivocal evidence of the species occurring in the last 200 years. Prior to this, R. S. R. Fitter (*Bull. Brit. Orn. Cl.* 79: 79–87, 102–113; revisited in *Birding World* 5: 75–77) compiled a comprehensive list of records, categorising at least 26 as now or formerly supported by specimens and 'in one case a clutch of eggs'. This clutch was presumed lost to science. However, examination of the Milton Abbey School Collection, acquired by the Natural History Museum, Tring, in 2001, revealed overlooked manuscripts that suggested its presence in the collection, which appears to have been formerly in the possession of the Beavan-Rake family. In 1862, William Farren (1836–87), a well-known naturalist and dealer, detailed in *The Zoologist* collecting the clutch on 9 June 1862 at Pignel, near Brockenhurst, Hampshire, in the New Forest. He subsequently passed the eggs to John de Capel Wise (1831–90) for authentication. The manuscripts indicated that Wise, who mentioned the eggs in his book *The New Forest: its history and scenery* (1883), had subsequently sold them to the surgeon Thomas Beavan-Rake. Three of the original clutch of four have now been found. Comparison with other European Black Woodpecker and Green Woodpecker *Picus viridis* eggs are inconclusive, but their identification can potentially be determined by molecular investigation. However, an answer to the central question of whether the clutch was actually taken in the New Forest will remain disappointingly elusive in the absence of an unambiguous method for determining a clutch's laying locality.

Lengthy discussion of the above meant insufficient time was available for Robert Prŷs-Jones's projected talk on *Type specimens of the Imperial Woodpecker: confusion resolved?*

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**Addendum**

In *Bull. Brit. Orn. Cl.* 131: 125, in the first paragraph of 'Remarks concerning the all-black coastal boubous (*Laniarius* spp.) in Kenya and southern Somalia', by Don Turner *et al.*, it was erroneously stated that no all-black birds had been sampled in the Nguembock *et al.* (2008) study. That sentence should have read 'With only one all-black bird sampled in the Nguembock *et al.* (2008) study…'.

# Variable plumage coloration of breeding Barbary Falcons *Falco (peregrinus) pelegrinoides* in the Canary Islands: do other Peregrine Falcon subspecies also occur in the archipelago?

*by Beneharo Rodríguez, Felipe Siverio, Manuel Siverio & Airam Rodríguez*

*Received 21 October 2010*

Summary.—The taxonomic status of the Barbary Falcon has been controversial for many years, it being variously considered a subspecies of Peregrine Falcon (*Falco peregrinus pelegrinoides*) or treated as a full species (*F. pelegrinoides*). Although morphological and molecular studies are still scarce, they suggest that subspecific status is more appropriate. Other subspecies of Peregrine, such as *F. p. brookei*, exhibit some plumage characteristics similar to Barbary Falcon. We quantitatively describe coloration patterns of Barbary Falcons breeding in the Canary Islands, based on photographs of wild birds, injured or dead individuals brought to rehabilitation centres, and specimens deposited in museum collections. We tested sexual differences, and compared Canaries falcons with a sample of specimens labelled as *F. p. brookei*. Males of both taxa are usually paler and possess less barred underparts than females. The majority (>60%) of birds in the Canaries have a Barbary Falcon-like appearance, but there is much overlap with *F. p. brookei*. This variation in coloration could be natural or relate to escaped falconry birds, meaning that molecular studies are needed to clarify the identity of wild falcons on the Canary Islands.

Peregrine Falcon *Falco peregrinus*, with at least 19 recognised subspecies worldwide, is one of the best-studied diurnal raptors (Ratcliffe 1993, White *et al.* 2002, Sielicki & Mizera 2009). However, for many of these races, such as the endemic Cape Verde Peregrine Falcon *F. p. madens*, few data are available concerning their general biology (Anderson & White 2000). For others, such as the pallid phase of the South American Peregrine *F. p. cassini* (formerly *F. p. kreyenborgi*) and the Black Shaheen *F. p. peregrinator*, although more biological data are available, their taxonomic status has been controversial for many years (Ellis & Garat 1983, White & Boyce 1988, Döttlinger 2002). Some authors have considered Barbary Falcon a subspecies of Peregrine (*F. p. pelegrinoides*: Helbig *et al.* 1994, del Hoyo *et al.* 1994, Wink & Seibold 1996), whilst others have treated it as a separate species, with two subspecies, *F. pelegrinoides pelegrinoides* and *F. p. babylonicus* (Vaurie 1961, Clark & Shirihai 1995, Ferguson-Lees & Christie 2001). Genetically, they appear to be very similar to other Peregrines (Wink *et al.* 2000), but morphologically they present very distinctive size and coloration patterns (Vaurie 1961, Clark & Shirihai 1995, Forsman 1999). Compared to Peregrine, this mid-sized falcon is slightly smaller, paler, has a more compact body shape, a very short-tailed silhouette in flight, and a different head pattern with a rufous patch on the nape (Clark & Shirihai 1995, Shirihai *et al.* 1998, Forsman 1999). Differences in skeleton features have also been described compared to other Peregrine subspecies (Vaurie 1961, White & Boyce 1988, Johansson *et al.* 1998).

Morphologically, Barbary Falcon and Peregrine *F. peregrinus brookei* can overlap (Forsman 1999), but in the past it was suggested that they do not hybridise in the wild (Vaurie 1961, Ferguson-Lees & Christie 2001). Recently, however, mixed pairs of Barbary

Falcons × *F. p. brookei* and individuals with coloration patterns intermediate between these falcons have been observed at several localities (Forsman 1999, Schollaert & Gilles 2000, Zuberogoitia *et al.* 2002, Rodríguez *et al.* 2009). The name '*atlantis*' has been used in relation to such intermediates between *F. p. brookei* and Barbary Falcon observed in Morocco (Schollaert & Dufourny 1995, Schollaert & Gilles 2000), and a preliminary genetic study has demonstrated that some birds on Fuerteventura (Canary Islands) possess the Barbary phenotype but also haplotypes of *F. p. brookei*, suggesting recent hybridisation (Amengual *et al.* 1992). During recent decades many ornithologists have studied the field identification of Barbary Falcon (Brosset 1986, Clark & Shirihai 1995, Wink & Seibold 1996, Shirihai *et al.* 1998, Forsman 1999, Schollaert & Gilles 2000, Corso 2001), but few studies have aimed to quantify its morphology (see Dementiev 1957, Vaurie 1961, White & Boyce 1988).

The Canary Islands mark the westernmost limit of the breeding range of Barbary Falcons (Ferguson-Lees & Christie 2001). In nearby Morocco, populations of Barbary, *F. p. brookei* and *F. p. minor* regularly breed, whilst in Iberia only *F. p. brookei* occurs as a breeder, although *F. p. calidus* and *F. p. peregrinus* regularly winter in both countries (Brosset 1986, Zuberogoitia *et al.* 2002). Here we describe, for the first time, variation in coloration patterns in falcons on the Canary Islands. Furthermore, we remark on the presence of breeding falcons in the archipelago whose morphology resembles *F. p. brookei*, based on comparison between Canaries birds and museum specimens from Iberia.

## Methods

***Study area and falcon population.***—The Canary Islands are a volcanic archipelago situated 100 km off the north-west Atlantic coast of Africa. They comprise seven major islands (from east to west: Lanzarote, Fuerteventura, Gran Canaria, Tenerife, La Gomera, La Palma and El Hierro), and several islets (Alegranza, Montaña Clara, La Graciosa and Lobos) and small marine rocks. Besides the breeding falcons, there are observations of migrant Peregrines in the archipelago (Martín & Lorenzo 2001). The Barbary Falcon population on the islands was considered threatened, but currently is increasing in numbers and range (a 17.6% mean annual increase was estimated in 1989–2007; Rodríguez *et al.* 2009), and the archipelago currently supports approximately 144 pairs (Siverio *et al.* 2009). For now, we consider the taxon to be a subspecies of Peregrine until molecular studies are undertaken.

***General procedures.***—We studied coloration patterns of 66 adult falcons from all of the major islands in the Canaries archipelago, except La Gomera and La Palma (see Appendix). For each individual, we recorded sex (based on size) and plumage colour using photographs or video recordings of wild birds, injured or dead animals admitted to wildlife rehabilitation centres, or museum specimens (Appendix). The majority of these data pertain to birds from the period 2000–10, but some specimens were collected in the early 20th century (Appendix). Except in a few cases (18%), we are certain that adults from the Canaries were breeders. Where possible we noted sex, locality and date to avoid repetition in the sample of wild individuals. Furthermore, we studied photographs of 26 specimens held at the Estación Biológica de Doñana CSIC (EBD, Seville) labelled *F. p. brookei* (collected in Iberia), and adult specimens belonging to the type series of Cape Verde Peregrine *F. p. madens* in the Yale Peabody Museum of Natural History, New Haven (YPBM; Appendix).

We adopted similar procedures to those of White & Boyce (1988), McDonald (2003) and Zuberogoitia *et al.* (2009a) to describe and code phenotypic characteristics of each adult. Because we lacked high-quality photograph of all birds, sample sizes differ between characters. Furthermore, because many birds were not studied in the hand, we could not measure directly facial characters. We endeavoured to obtain three facial measurements for

TABLE 1
Description of plumage characteristics of adult falcons and codes used in the present study.

| Feature | Description | Scores | | |
|---|---|---|---|---|
| | | 1 | 2 | 3 |
| Superciliary | Presence or absence of pale superciliary stripe | Clearly visible | Absent or very small | - |
| Forehead | Presence or absence of pale spot | Clearly visible | Absent or very small | - |
| Nape | Size of rufous / reddish area on the nape | Single large rufous patch | Clearly visible rufous lines | Absent or too small to see |
| Back | Relative darkness of the upperparts | Paler | Intermediate | Darker |
| Upper breast | Presence of spots | Unmarked | Partially marked on lower half | Fully marked |
| Breast | Intensity of barring | Almost white or only slightly barred on flanks | Barred | Heavily spotted |
| Colour | General colour of the ventral surface | White | Cream | Pinkish or rufous |

each bird, expressed relative to eye dimension: width of the moustachial at the midpoint, width of the pale cheek patch from the distal tip to upper end of the ear-coverts, and width of the dark patch between the eye and upper end of the paler ear-coverts (see Fig. 1). We also coded seven coloration characters (Table 1). For each individual, we calculated an index of similarity to Barbary Falcon (ISBF) as follows: *Moustachial + Cheek + Black + Supercilary + Forehead + Nape + Back + Upper breast + Breast + Colour*.

Lower values conform to those birds with a typical Barbary phenotype (pale appearance, white forehead, presence of a superciliary stripe, red nape, larger cheek patch, etc.), while higher scores relate to Peregrine-like birds (dark with heavily spotted underparts, small cheek patch, no red on the nape and no superciliary or white on the forehead).

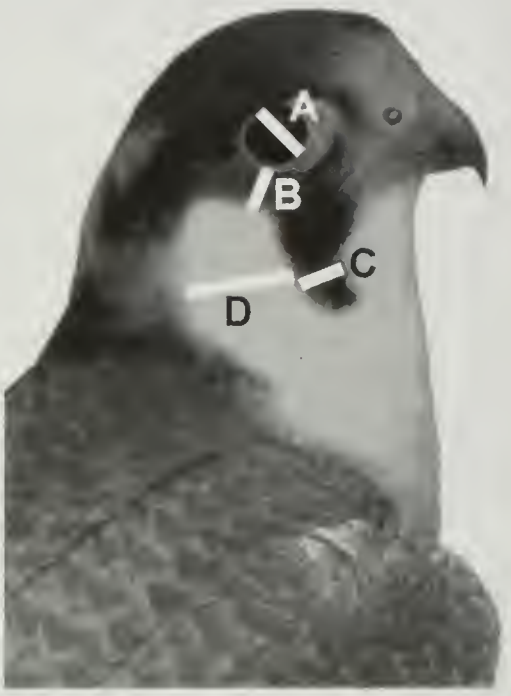



Figure 1. Diagram showing measurements taken of the head pattern of falcons from the Canary Islands and Iberia (A = eye dimension, B = black area below the eye, C = moustachial, D = cheek patch; see text for more details).

***Statistical analyses.***—Two-way ANOVAs were used to test differences in head patterns including by sex and origin (Canary Islands vs. Iberia) as factors. A Principal Component Analysis (PCA) with varimax rotation was performed to order and identify the contributions of each coloration variable (head pattern and general plumage) to establish possible differences between falcons from the Canaries and Iberia. A total of 78 falcons was analysed to calculate the correlation matrix. Bartlett's sphericity test ($\chi^2 = 202.4$; df = 28; $P < 0.001$) and KMO measure (0.759) indicated the adequacy of the correlation matrix. We extracted those principal components exhibiting Eigenvalues higher than 1. A Mann-Whitney *U*-test was employed to compare sexual differences in the head patterns of Canaries falcons. Statistical calculations were made using the SPSS (v.17.0) statistical package.

TABLE 2
Head pattern characters (mean ± SD) of falcons from the Canary Islands and Iberia (see text for further details), based on specimens and live birds (sample size in brackets). Significance level of two-way ANOVAs (sex and origin as factors) (significant values are placed in bold).

| Character | Canary Islands *F. p. pelegrinoides* | Iberia *F. p. brookei* | $F_{sex}$ | $F_{origin}$ | $F_{interaction}$ |
|---|---|---|---|---|---|
| Moustachial | | | | | |
| Male | 1.15 ± 0.25 (26) | 1.15 ± 0.29 (11) | | | |
| Female | 1.30 ± 0.30 (29) | 1.28 ± 0.30 (14) | **4.39** | 0.23 | 0.04 |
| Total | 1.23 ± 0.29 (55) | 1.22 ± 0.30 (25) | | | |
| Cheek patch | | | | | |
| Male | 2.26 ± 0.58 (28) | 1.42 ± 0.35 (11) | | | |
| Female | 2.31 ± 0.65 (30) | 1.72 ± 0.49 (14) | 1.63 | **27.29** | 0.72 |
| Total | 2.30 ± 0.68 (58) | 1.59 ± 0.45 (25) | | | |
| Black below eyes | | | | | |
| Male | 1.01 ± 0.32 (28) | 1.54 ± 0.44 (11) | | | |
| Female | 1.18 ± 0.31 (30) | 1.50 ± 0.39 (14) | 0.54 | **23.97** | 1.27 |
| Total | 1.09 ± 0.33 (58) | 1.22 ± 0.40 (25) | | | |

## Results

*General description of falcons from the Canary Islands.*—In general, Canaries falcons possess a narrow moustachial and large white cheek patch almost reaching the eye (Table 2). A total of 71% of birds have red or rufous on the nape (scores 1 or 2; Fig. 2). Almost half (48.4%) possess a white or pale patch on the forehead, and just 13.1% possess a superciliary stripe (Table 3, Figs. 2–4).

Those birds analysed by us exhibited all three scores for the darkness of the upperparts, but the majority (67.8%) presented intermediate (2) or paler scores (1) (Table 3; Figs. 2–4). In general, the upper breast and breast scored intermediate or low values in terms of barring (86.4% and 84.7%, respectively), but 13.6% and 15.3% had the heavily barred upper breast and breast, respectively, typical of Peregrine (Table 3). The underparts were cream-coloured in 66.1%, with the remainder white or pinkish-coloured (Table 3).

*Comparison between F. p. pelegrinoides, F. p. brookei and F. p. madens.*—Canaries falcons exhibit lower values in almost all plumage characteristics than Iberian birds (Tables 2–3), and possess a significantly larger pale cheek patch than falcons from Iberia and the smallest black area below the eyes (Table 2). ISBF values of Canaries falcons were significantly lower than Iberian falcons (13.1 ± 3.0 vs. 17.2 ± 2.4; $U = 213.5$, $P < 0.001$), although there is considerable overlap (Fig. 5). Some 63.6% and 16.1% of birds from the Canaries and Iberia, respectively, possessed ISBF val-

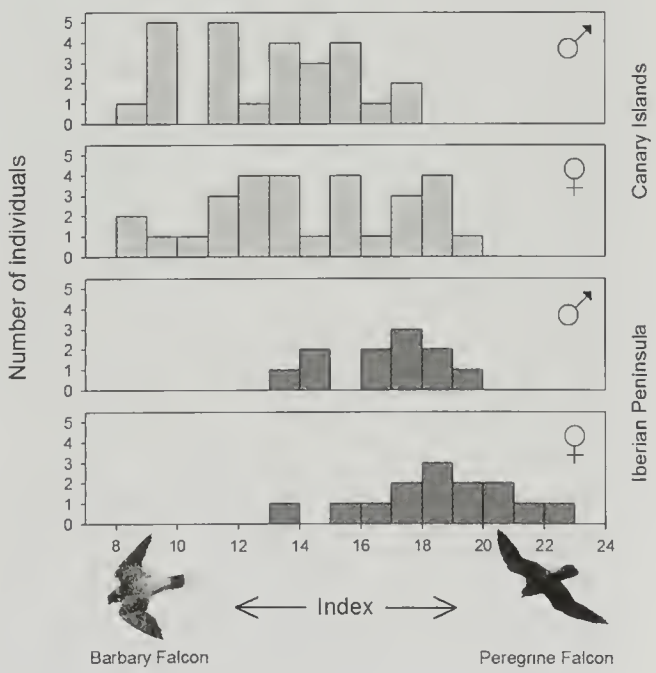



Figure 5. Variation in the Barbary–Peregrine phenotype index (ISBP) utilised in the present study (see text for details), according to sex and origin.

TABLE 3
Plumage colour characters of adult falcons from the Canary Islands and Iberia (percentages in parentheses).

| Character | Code | Canary Islands *F. p. pelegrinoides* | | | Iberia *F. p. brookei* | | |
|---|---|---|---|---|---|---|---|
| | | Male | Female | Total | Male | Female | Total |
| Superciliary | 1 | 2 (3.3) | 6 (9.8) | 8 (13.1) | 0 (0) | 0 (0) | 0 (0) |
| | 2 | 25 (41.0) | 28 (45.9) | 53 (86.9) | 11 (42.3) | 15 (57.7) | 26 (100) |
| Forehead | 1 | 16 (25.8) | 14 (22.6) | 30 (48.4) | 0 (0) | 0 (0) | 0 (0) |
| | 2 | 15 (24.2) | 17 (27.4) | 32 (51.6) | 11 (42.3) | 15 (57.7) | 26 (100) |
| Nape | 1 | 3 (4.8) | 2 (3.2) | 5 (8.1) | 0 (0) | 0 (0) | 0 (0) |
| | 2 | 21 (33.9) | 18 (29.0) | 39 (62.9) | 3 (11.5) | 2 (7.7) | 5 (19.2) |
| | 3 | 7 (11.3) | 11 (17.7) | 18 (29.0) | 8 (30.8) | 13 (50) | 21 (80.8) |
| Back | 1 | 8 (13.6) | 4 (6.8) | 12 (20.3) | 0 (0) | 0 (0) | 0 (0) |
| | 2 | 15 (25.4) | 13 (22.0) | 28 (47.5) | 6 (23.1) | 3 (11.5) | 9 (343.6) |
| | 3 | 7 (11.9) | 12 (20.3) | 19 (32.2) | 5 (19.2) | 12 (46.2) | 17 (65.4) |
| Upper breast | 1 | 13 (22.0) | 7 (11.9) | 20 (33.9) | 2 (7.7) | 1 (3.8) | 3 (11.5) |
| | 2 | 14 (23.7) | 17 (28.8) | 31 (52.5) | 9 (34.6) | 6 (23.1) | 15 (57.7) |
| | 3 | 2 (3.4) | 6 (10.2) | 8 (13.6) | 0 (0) | 8 (30.8) | 8 (30.8) |
| Breast | 1 | 13 (22.0) | 5 (8.5) | 18 (30.5) | 2 (7.7) | 1 (3.8) | 3 (11.5) |
| | 2 | 14 (23.7) | 18 (30.5) | 32 (54.2) | 7 (26.9) | 7 (26.9) | 14 (53.8) |
| | 3 | 2 (3.4) | 7 (11.9) | 9 (15.3) | 2 (7.7) | 7 (26.9) | 9 (34.6) |
| Colour | 1 | 13 (22.0) | 6 (10.2) | 19 (32.2) | 3 (11.5) | 1 (3.8) | 4 (15.4) |
| | 2 | 16 (23.7) | 23 (39.0) | 39 (66.1) | 6 (23.1) | 9 (34.6) | 15 (57.7) |
| | 3 | 0 (0) | 1 (1.7) | 1 (1.7) | 2 (7.7) | 5 (19.2) | 7 (26.9) |

ues lower than the mean (14.4) considering individuals from both study areas. The first three principal components retained 70.6% of the original variance (Table 4), with PC1 clearly related to general body coloration (both upper- and underparts), whilst PC2 was associated with the size and morphology of the cheek patch, and PC3 with the width of the moustachial (Table 4). When the location associated with each falcon is plotted on the principal component axes, some differentiation is observed in PC2 according to origin (Fig. 6). This suggests that two important coloration characteristics for differentiating these populations are the sizes of the cheek patch and black area below the eye, which two variables possess higher Eigenvalues in PC2 (Table 4; Fig. 6).

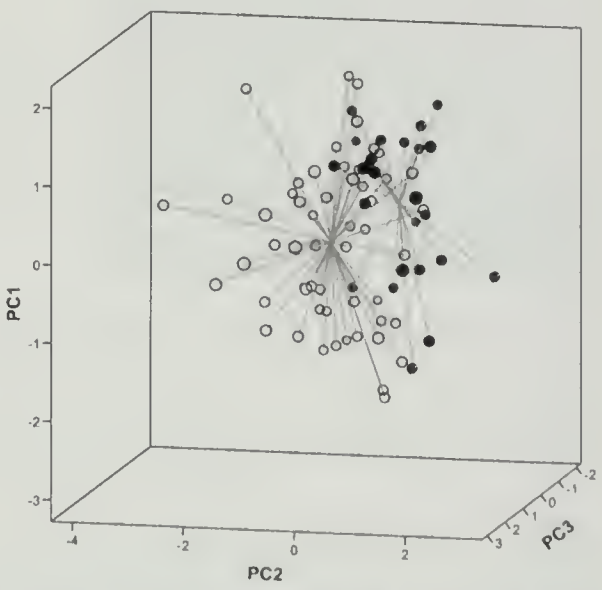



Figure 6. Locations associated with each falcon (white dots = Canary Islands and black dots = Iberia) on the principal component axes.

Visually, several birds from the Canaries are like Peregrines, having very dark upperparts, heavily barred underparts and a head pattern characterised by the complete absence of or smallest red nape patch and small white

TABLE 4
Importance of coloration variables in falcons from the Canary Islands and Iberia (see Appendix), with respect to each varimax-rotated factor of the principal components analysis (PCA). Factor loadings values larger than 0.7 are indicated in bold.

| Variable | Factor loadings | | |
|---|---|---|---|
| | PC1 | PC2 | PC3 |
| Moustachial | 0.109 | 0.057 | **0.972** |
| Cheek patch | -0.099 | **-0.878** | 0.127 |
| Black below eyes | 0.180 | **0.785** | 0.358 |
| Nape patch | 0.470 | 0.516 | 0.062 |
| Back colour | **0.808** | 0.242 | 0.041 |
| Upper breast | **0.816** | 0.164 | 0.033 |
| Breast | **0.853** | 0.175 | 0.158 |
| Colour | 0.270 | 0.597 | 0.038 |
| Eigenvalue | 2.394 | 2.130 | 1.122 |
| Explained variance (%) | 43.7 | 14.3 | 12.6 |

cheek patch (Figs. 7–10), which characters are typical of Peregrine. On the other hand, two individuals from Iberia labelled *F. p. brookei* (see Fig. 11 for one example) exhibit the typical Barbary Falcon phenotype.

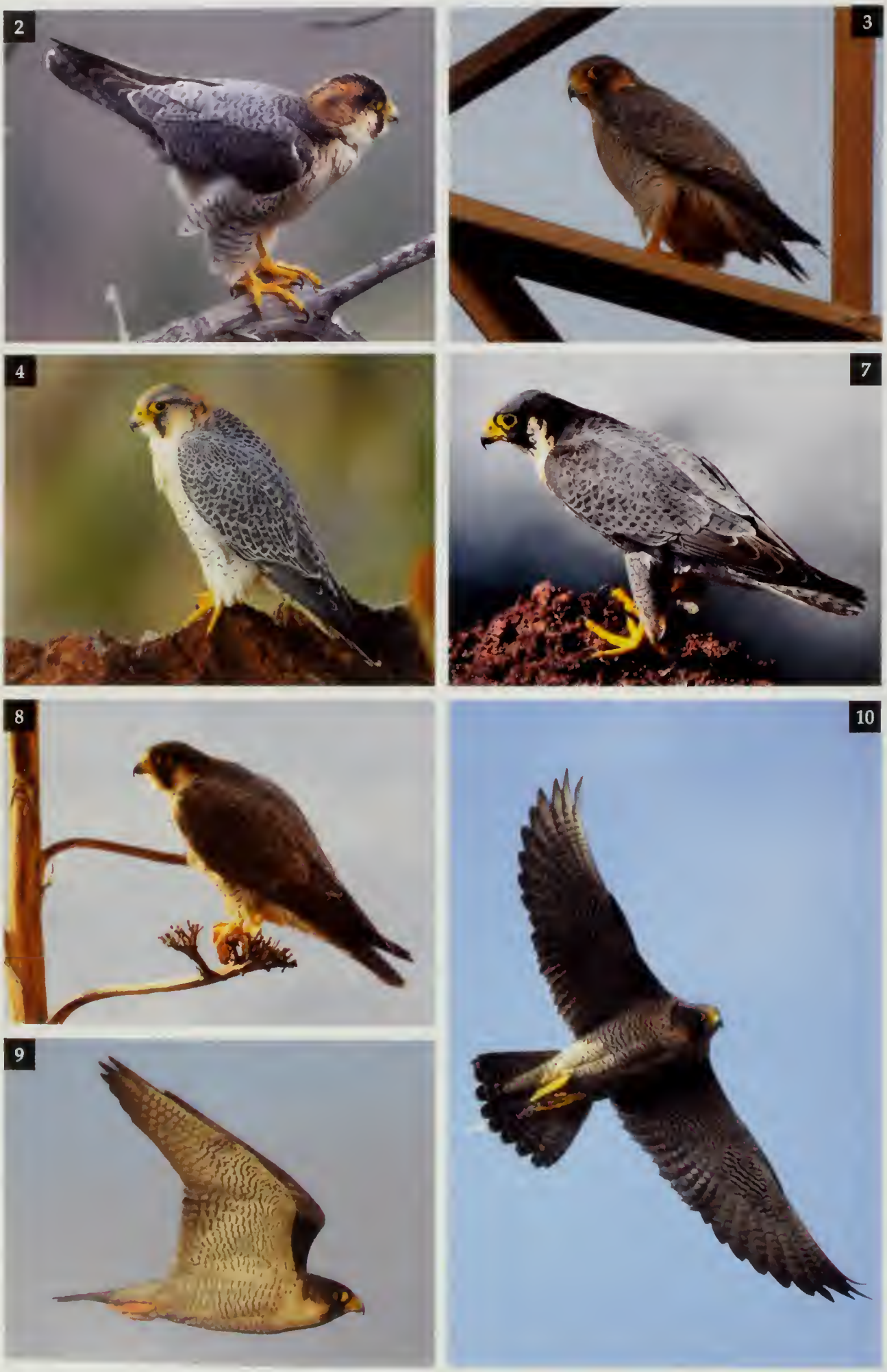
Due to our small sample size we cannot quantitatively compare coloration of Cape Verde *F. p. madens* with *F. p. pelegrinoides*. However, the Cape Verde type series (two adults and a juvenile) possess relatively darker upperparts than typical Barbary Falcon, as well as red napes and moderately barred breasts (Fig. 12).

***Sexual differences.***—Male falcons on the Canaries possess a narrower moustachial and smaller black area below the eyes than females ($U$ = 258.50, $P$ = 0.045 and $U$ = 255.00, $P$ = 0.040, respectively; Table 2). Both on the Canaries and in Iberia, males are usually paler than females in general body coloration (Table 3).

## Discussion

Several mechanisms could be at work in the coloration of Peregrine populations (White *et al.* 1995). Most neighbouring populations show clines in characters reflecting environmental pressures or genetic influence (White *et al.* 1995). Some authors have suggested that Peregrine Falcon populations provide an example of Gloger's Rule (Johansson *et al.* 1998), which states that within a species more heavily pigmented individuals tend to be found in humid environments, with less-coloured individuals in dry climates (Millien *et al.* 2006). Degradation of the feathers by parasites could affect their coloration, and the intensity of parasite activity could be favoured by particular environmental conditions (e.g., Figuerola *et al.* 2003, Burtt & Ichida 2004).

Within each subspecies of Peregrine, considerable variation in coloration has been described, especially at the limits of their distribution or in areas of potential overlap (Stepanyan 1995, Ferguson-Lees & Christie 2001, Wheeler 2003). For example, Zuberogoitia *et al.* (2009a) documented that falcons breeding in northern Iberia vary in coloration, some individuals appearing like typical *F. p. brookei* and others like *F. p. peregrinus*. In North America, *F. p. anatum* displays highly variable plumage due to hybridisation during recent decades with Peregrines from different populations (White *et al.* 1995). Whereas Dementiev (1957) noted that Barbary Falcons also are highly variable individually, based on a small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sample, Vaurie (1961) elected to recognise two subspecies of Barbary Falcon, and considered that geographic variation was relatively slight.

In general, the coloration of most falcons on the Canaries studied by us matches descriptions of Barbary Falcon (Clark & Shirihai 1995, Forsman 1999, Corso 2001, Ferguson-Lees & Christie 2001). However, our results also demonstrated the existence of considerable plumage variation within the population breeding on the Canaries, with some resembling *F. p. brookei* (Figs. 7–10). Some specimens of *F. p. brookei* from Iberia possess red nape patches, a narrow moustachial, paler back and less barring on the underparts (Fig. 11), suggesting a mixture of *F. p. pelegrinoides* and *F. p. brookei* characters. Although 'Barbary'-like birds from Iberia could be vagrants, some breeding falcons there possess Barbary Falcon coloration (see Zuberogoitia *et al.* 2002, 2009a). Some Canaries falcons also resemble the endemic and rare Cape Verde Peregrine Falcon (Anderson & White 2000). However, our small sample does not permit precise comparison. Sexual differences are also important in both main populations studied, with males on average paler than females (as also reported by Clark & Shirihai 1995, Corso 2001, Zuberogoitia *et al.* 2009a).

The presence of Peregrine-like birds breeding on the Canaries, and others with the Barbary phenotype but molecularly similar to *F. p. brookei* (Amengual *et al.* 1992) could be caused by several factors. It has been proven that even Peregrines belonging to sedentary populations can breed >100 km from their natal area (Zuberogoitia *et al.* 2009b), meaning that it is possible that continental Peregrines have reached the Canaries and started to breed with local falcons. This hypothesis is supported by the fact that birds with the Barbary phenotype have been recorded in Iberia and other Mediterranean countries where *F. p. pelegrinoides* does not breed (Corso 2001, Zuberogoitia *et al.* 2002, Massa & Brichetti 2003).

Another potential explanation for the presence of Peregrine-like birds in the Canaries could be related to the increase of falconry on these islands in recent years. At least one female of captive origin with a Peregrine-like appearance has been observed on Tenerife paired and holding territory with a typical male Barbary Falcon (Rodríguez *et al.* 2009). Hybridisation between raptors of captive origin and wild individuals has been recorded in several species, including Peregrine, at various places in the world (Oliphant 1991,

**Legend to figures on facing page**

Figure 2. Barbary Falcon *Falco peregrinus pelegrinoides*, Tenerife, Canary Islands, February 2006; note the extremely large rufous patches on the nape of this breeding male (José J. Hernández)

Figure 3. Barbary Falcon *Falco peregrinus pelegrinoides*, Tenerife, Canary Islands, January 2010; note the narrow superciliary stripe in this breeding female (Beneharo Rodríguez)

Figure 4. Barbary Falcon *Falco peregrinus pelegrinoides*, Tenerife, Canary Islands, January 2009; this breeding female shows all of the typical characters of *pelegrinoides*: the narrow moustachial, large cheek patch, pale forehead, large red nape patches, pale back, and paler-barred breast (Jesús Palmero)

Figure 7. Peregrine / Barbary Falcon *Falco peregrinus* ssp., Tenerife, Canary Islands, January 2010; this breeding male has a Peregrine-like appearance, with a black-hooded head, small, oblong cheek patches and very dark upperparts (Nicolás Trujillo)

Figure 8. Peregrine / Barbary Falcon *Falco peregrinus* ssp., Tenerife, Canary Islands, April 2008; this breeding female has a Peregrine-like appearance, defined by the relatively small cheek patch, large moustachial, absence of rufous patches on the nape, and dark upperparts; and it also had heavily barred underparts (Beneharo Rodríguez)

Figure 9. Peregrine / Barbary Falcon *Falco peregrinus* ssp., Tenerife, Canary Islands, January 2010; this breeding male (the mate of the bird in Fig. 4) resembles a Peregrine due to its black hood, no pale forehead, small cheek patch, large black area below the eyes and relatively small rufous nape patches, but does have a slightly barred breast (Beneharo Rodríguez)

Figure 10. Peregrine / Barbary Falcon *Falco peregrinus* ssp., Tenerife, Canary Islands, January 2008; this breeding female has a typical Peregrine-like appearance, with a relatively small cheek patch, large moustachial and heavily barred breast (José J. Hernández)

Figure 11. Ventral and dorsal views of *Falco peregrinus brookei* collected in Iberia and deposited in the collection of the Estación Biológica de Doñana CSIC, Seville, Spain (catalogue numbers from left to right: 8267a, 17701a, 21382a, 21685a and 17520a). Note the ventral and dorsal coloration typical of Barbary Falcon *F. p. pelegrinoides* in 21685a (Airam Rodríguez)

Figure 12. Ventral and dorsal views of the type series of *Falco peregrinus madens* from the Cape Verde Islands deposited in the Yale Peabody Museum of Natural History, New Haven. From left to right: adult female collected on Brava (catalogue no. 44551), adult male collected on Santiago (catalogue no. 44553) and juvenile female collected on Brava (catalogue no. 44552). Note the sparse spotting on the ventral surface, relative darkness of the upperparts and the presence of visible red patches on the napes of the adults (photographs courtesy of Yale Peabody Museum)

Lindberg & Nesje 2002, Everitt & Franklin 2009). Escaped individuals threaten wild falcons because they could compete for resources or through genetic pollution (Lindberg & Nesje 2002). Some hybrids are very conspicuous (Randler 2004) whilst others are very difficult or impossible to correctly identify in the field, especially when second- or third-generation hybrids are involved (Eastham *et al.* 2005), meaning that they can easily go undetected by ornithologists. Given that some hybrid pairings are capable of producing fertile young (Everitt & Franklin 2009), and because relatively few individuals with high breeding fitness could have a major role in shaping the morphological and genetic structure of a population (White *et al.* 1995), it is possible that escaped falcons have played some role in colour variation observed in the Canaries. In this respect, considering the rise of falconry in the Canary Islands in recent years and the escape of falcons, the appropriate regional authorities should take effective measures to prevent any genetic pollution.

Phylogeographic analyses have proven powerful in elucidating patterns of gene flow and hybridisation among raptor species (Nittinger *et al.* 2007). Detailed studies combining morphology and genetics of falcons from the Macaronesia, North Africa and the Mediterranean Basin are needed to clarify the taxonomic relationships of these populations.

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## Appendix

Origin, date and sex of adult falcons (*Falco peregrinus pelegrinoides, F. p. brookei, F. p. madens* and *F. peregrinus* ssp.) considered by the present study (Al = Alegranza, L = Lanzarote including its northern islets, F = Fuerteventura, GC = Gran Canaria, T = Tenerife, H = El Hierro, CI = Canary Islands, IB = Iberia, CV = Cape Verde Islands, WRCT = Wildlife Rehabilitation Centre La Tahonilla, Tenerife, AMNH = American Museum of Natural History, New York, BMNH = Natural History Museum, Tring, EBD = Estación Biológica de Doñana CSIC, Seville, YPBM = Yale Peabody Museum of Natural History, New Haven, DBC = Private collection of Domingo Bello, * = appearance of *F. p. pelegrinoides*, ** = appearance of *F. p. peregrinus*).

| ID | Origin | Date | Sex | Skin / live | Photographer or institution |
|---|---|---|---|---|---|
| 1 | Al | 01-04-1998 | ♀ | live | O. Trujillo |
| 2 | L | 01-05-2003 | ♀ | live | Authors |
| 3 | L | 23-05-1913 | ♂ | skin | BMNH |
| 4 | L | 12-11-1904 | ♀ | skin | AMNH |
| 5 | L | 01-03-2005 | ♂ | live | J. Palmero |
| 6 | L | 01-03-2005 | ♂ | live | J. Palmero |
| 7 | L | 01-03-2005 | ♂ | live | J. Palmero |
| 8 | L | 01-03-2005 | ♀ | live | J. Palmero |
| 9 | L | 01-03-2005 | ♀ | live | N. Trujillo |
| 10 | L | 1999 | ♂ | live | P. Felipe |
| 11 | L | 1999 | ♀ | live | P. Felipe |
| 12 | L | 2006 | ♂ | live | J. Sagardía |
| 13 | L | 2006 | ♀ | live | J. Sagardía |
| 14 | L | 2006 | ♂ | live | J. Sagardía |
| 15 | L | 2006 | ♂ | live | J. Sagardía |
| 16 | L | 2006 | ♀ | live | J. Sagardía |
| 17 | L | 2006 | ♀ | live | J. Sagardía |
| 18 | L | 2006 | ♂ | live | J. Sagardía |
| 19 | L | 2006 | ♂ | live | J. Sagardía |
| 20 | L | 2006 | ♀ | live | J. Sagardía |
| 21 | F | 01-02-2008 | ? | live | J. J. Hernández |
| 22 | F | 27-06-1902 | ♂ | skin | AMNH |
| 23 | F | 22-06-1904 | ♂ | skin | AMNH |
| 24 | F | 21-03-2009 | ♂ | live | M. Cabrera |
| 25 | F | 10-12-2009 | ♂ | live | J. J. Hernández |
| 26 | GC | 09-12-2007 | ♀ | live | M. A. Suárez |
| 27 | GC | 06-12-2008 | ♀ | live | M. A. Suárez |

| ID | Origin | Date | Sex | Skin / live | Photographer or institution |
|---|---|---|---|---|---|
| 28 | GC | 1999 | ♀ | live | P. Felipe |
| 29 | GC | 1997 | ♂ | live | P. Felipe |
| 30 | GC | 2009 | ♂ | live | J. D. Morata |
| 31 | GC | 22-08-2009 | ♂ | live | J. D. Morata |
| 32 | GC | 10-06-2009 | ♂ | live | J. D. Morata |
| 33 | T | 2006 | ♂ | live | J. J. Hernández |
| 34 | T | 2006 | ♀ | live | J. J. Hernández |
| 35 | T | 01-02-2008 | ♂ | live | J. J. Hernández |
| 36 | T | 01-02-2008 | ♀ | live | J. J. Hernández |
| 37 | T | 01-01-2008 | ♂ | live | J. J. Hernández |
| 38 | T | 01-01-2008 | ♀ | live | J. J. Hernández |
| 39 | T | 01-09-2006 | ♀ | live | Authors |
| 40 | T | 01-04-2005 | ♀ | live | Authors |
| 41 | T | 01-02-2005 | ♂ | live | P. Felipe |
| 42 | T | 08-02-2007 | ♀ | live | WRCT |
| 43 | T | 28-04-2008 | ♂ | live | Authors |
| 44 | T | 30-04-2008 | ♀ | live | Authors |
| 45 | T | 30-04-2008 | ♂ | live | Authors |
| 46 | T | 18-05-2004 | ♂ | live | WRCT |
| 47 | T | 15-05-2008 | ♀ | skin | WRCT |
| 48 | T | 19-05-2008 | ♀ | live | WRCT |
| 49 | T | 10-10-2007 | ♀ | live | Authors |
| 50 | T | 29-09-2009 | ♀ | live | Authors |
| 51 | T | 20-09-2008 | ♂ | live | Authors |
| 52 | T | 20-09-2008 | ♀ | live | Authors |
| 53 | T | 14-11-2008 | ♂ | live | Authors |
| 54 | T | 14-11-2008 | ♀ | live | Authors |
| 55 | T | 02-01-2009 | ♂ | live | J. Palmero |
| 56 | T | 02-01-2009 | ♀ | live | J. Palmero |
| 57 | T | 02-01-2010 | ♀ | live | Authors |
| 58 | T | 02-01-2010 | ♂ | live | Authors |
| 59 | T | 07-01-2010 | ♂ | live | N. Trujillo |
| 60 | T | 10-01-2010 | ♀ | live | Authors |
| 61 | T | 10-01-2010 | ♂ | live | Authors |
| 62 | T | 25-01-2010 | ♀ | live | J. J. Hernández |
| 63 | H | 01-03-2004 | ♂ | live | Authors |
| 64 | H | 15-04-2008 | ♀ | live | D. Trujillo |
| 65 | Cl | ? | ? | skin | DBC |
| 66 | Cl | ? | ? | skin | DBC |
| 67 | IB | 20-11-1962 | ♀ | skin | EBD |
| 68* | IB | 11-12-1934 | ♀ | skin | EBD |
| 69 | IB | 08-01-2003 | ♀ | skin | EBD |
| 70 | IB | 1940 | ♀ | skin | EBD |
| 71 | IB | 1960 | ♀ | skin | EBD |
| 72 | IB | 1940 | ♂ | skin | EBD |
| 73 | IB | 1991 | ♀ | skin | EBD |

| ID | Origin | Date | Sex | Skin / live | Photographer or institution |
|---|---|---|---|---|---|
| 74 | IB | 24-03-1991 | ♀ | skin | EBD |
| 75 | IB | 14-06-1983 | ♂ | skin | EBD |
| 76 | IB | 30-08-1995 | ♂ | skin | EBD |
| 77 | IB | 18-10-2000 | ♂ | skin | EBD |
| 78 | IB | 15-08-1985 | ♂ | skin | EBD |
| 79* | IB | 11-10-1990 | ♂ | skin | EBD |
| 80 | IB | 1994 | ♂ | skin | EBD |
| 81 | IB | 05-07-1995 | ♀ | skin | EBD |
| 82 | IB | 22-02-1990 | ♀ | skin | EBD |
| 83 | IB | 11-1987 | ♀ | skin | EBD |
| 84 | IB | 1984 | ♀ | skin | EBD |
| 85 | IB | 1986 | ♀ | skin | EBD |
| 86 | IB | 30-11-1996 | ♂ | skin | EBD |
| 87 | IB | 28-09-2006 | ♀ | skin | EBD |
| 88 | IB | 1983 | ♀ | skin | EBD |
| 89 | IB | 26-06-1997 | ♀ | skin | EBD |
| 90** | IB | 24-09-1998 | ♂ | skin | EBD |
| 91 | IB | 11-1990 | ♂ | skin | EBD |
| 92 | IB | 01-10-1977 | ♂ | skin | EBD |
| 93 | CV | 22-04-1924 | ♂ | skin | YPBM |
| 94 | CV | 1924 | ♀ | skin | YPBM |

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# On the voice, distribution and habitat of Baumann's Greenbul *Phyllastrephus baumanni*

*by Françoise Dowsett-Lemaire, Ron Demey & Robert J. Dowsett*

*Received 2 January 2011*

Summary.—The song of Baumann's Greenbul *Phyllastrephus baumanni* was first tape-recorded in 2001, and since then this discreet bulbul, often misidentified in the past (Fishpool 2000), has been found at many new localities from north-western Guinea to western Cameroon, with an altitudinal range of 10–1,500 m. Following a description of the distinctive vocalisations, we list all new localities by country and include details of its ecological preferences. The species appears to be locally common in the forest-savanna (or Guineo-Congolian / Sudanian) transition zone, but is rather scarce at the margins of the Guineo-Congolian forest biome except in the Nimba / Loma highlands. It invariably occupies low, dense growth 1–2 m above ground (rarely up to 4–5 m), including fallow fields and *Chromolaena* farmbush to thickets in transition woodland or in open semi-evergreen forest, under broken canopy. In the last situation it frequently comes into contact with White-throated Greenbul *P. albigularis*. It avoids closed, mature forest.

Fishpool (2000) produced a clear and critical account of acceptable records of Baumann's Greenbul *Phyllastrephus baumanni* across its relatively narrow range from Sierra Leone to Nigeria. The species has since been found in Guinea (Demey & Rainey 2004, 2006, Demey 2006, R. Demey *et al. in Bull. Afr. Bird Cl.* 15: 268), Benin (Dowsett & Dowsett-Lemaire 2011, and *in Bull. Afr. Bird Cl.* 18: 230) and western Cameroon (Bobo *et al.* 2007). This rather nondescript greenbul (Fishpool 1999) has been poorly documented in life and had been misidentified in publications as, *inter alia*, Slender-billed Greenbul *Andropadus gracilirostris*, White-throated Greenbul *Phyllastrephus albigularis* and even Brown Illadopsis *Illadopsis fulvescens* (Fishpool 2000). The voice had not been tape-recorded by the time Chappuis (2000) compiled his comprehensive collection of CDs. Based on definite records, mostly specimens and some verified photographs, Fishpool (2000) concluded that the species was absent from primary lowland rain forest, instead being associated mainly with the forest-savanna ecotone or transition zone, including mid-altitude forest on hills and slopes at 500–1,100 m. Some collectors noted that they obtained the bird low down, e.g. 'near the ground in thick foliage in second-growth' (Serle 1950), but many labels bear no details, the localities being associated with the presence of forest or thick bush without further specification. In Sierra Leone, G. Field (*in* Fishpool 2000) reported that he found the species widespread in the mid-altitude forests of the north, in the shrub layer of undergrowth or even in the 'open mid-layer', right down into 'proper' forest. The general conclusion reached by Fishpool (2000: 226) is that the bird, like other *Phyllastrephus* species, is not present in the canopy, but 'it is likely that (it) forages at or near ground level'.

In 2001 RD tape-recorded the species in Mont Sangbé National Park, Ivory Coast. In 2004 FD-L, helped by a copy of this tape, located the species in Kyabobo National Park in eastern Ghana, and obtained further recordings there (including of a bird singing while trapped in a mist-net) and elsewhere. Knowledge of the voice helped us locate more birds in the field, in Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin and Nigeria, and we present here a description of the species' vocalisations and a reassessment of its

status, distribution and habitat preferences. Some of the more characteristic species sharing its habitat are cited; particular attention was paid to the presence of other *Phyllastrephus* greenbuls. Baumann's Greenbul was removed from Near Threatened (Collar *et al.* 1994) to Data Deficient (BirdLife International 2000, 2004) and has recently been downgraded to Least Concern (BirdLife International 2008). This decision is based largely on our observations, which we present here.

## Voice

The song comprises a series of detached, disjointed notes, some of them reminiscent of the typical calls of Common Bulbul *Pycnonotus barbatus*. As described in Borrow & Demey (2001), it commences with 2–4 slightly nasal, rising notes, followed by a series of scolding *wik* notes. It could be transcribed *whu, whee, whueew, wik, wik, chuk, chuk, chuk* followed, after a slight pause, by another series of *whur, whur, whir, wik, wik, rrik, rrik, rrik....* The soft *whu* or slightly rolled *whur* notes are delivered more slowly (*c.*2 per second) than the louder *wik, wik, rrik, rrik* (often three per second), which are quite similar to those of Common Bulbul. The song is not far carrying, being uttered from the interior of low, dense growth. At times it may not be audible beyond a range of 20–30 m or even less. In the early morning the song may be given almost continuously for several minutes or more. At other times of the day, song phrases may be quite short, consisting of just a few notes with a pause of several seconds before the next phrase. Playback may bring the bird close, and sometimes even into the open atop a low bush, but most birds do not stay in view for long. We found no significant differences in songs tape-recorded from Guinea to Nigeria; birds in Sierra Leone, eastern Ghana and Benin tested with playback of a song from Ivory Coast were very prompt to react.

The distinction between calls and songs is not always clear, as these *wik Pycnonotus*-type notes may be given in isolation or as part of the song. Given less frequently, some call notes (probably alarm-calls) consist of a low churr, rather nasal: this was heard in several places in Ghana and Benin. In Benin soft churrs were given at the rate of one every two seconds (tape-recorded), and on another occasion highly stressed birds (mobbing or interacting with something we could not see) gave a fast series of short rattles *rree-rree-rree...* (8–12 per second, tape-recorded). Marchant (1953), who collected the species in Nigeria, gave a description of the voice that accords well with the song described above, mentioning a 'continuous clucking', some of which he compared to Little Greenbul *Andropadus virens* and some to the 'typical calls' of Common Bulbul.

Songs were heard at all seasons but sometimes only when provoked by playback. Overall, the species was more vocal after the start of the first rains than in the dry season.

A copy of the tape-recordings obtained by FD-L in Sierra Leone, Ghana and Benin has been deposited with the British Library in London.

## Distribution and Habitat

### Guinea (RD)

*Pic de Fon.*—One pair heard and seen at forest edge on 3 December 2002 at *c.*570 m, where the forest graded into derived savanna, and this, or another pair, was found *c.*100 m away next day (Demey & Rainey 2004). These were the first records for Guinea. In October 2008, the species was found at five additional sites in the submontane forest–grassland transition zone, at 1,189–1,494 m, and at a lower site in gallery forest, at 957 m. At three of the five high-elevation sites it occurred alongside Sierra Leone Prinia *Schistolais leontica* in dense

thicket-like, luxuriant herbaceous vegetation attaining 1.5–3.0 m height, with species such as *Brillantaisia owariensis* (often dominant), *B. laminm*, *Trimmfetta* sp. and various Asteraceae.

*Mont Béro.*—One singing in shrubbery at forest edge, where the forest graded into derived savanna, at *c.*600 m, in December 2003 (Demey & Rainey 2006).

*Sarabaya (Boké Préfectnre).*—Just above sea level. In April 2005, seven pairs were found in farmbush, consisting principally of *Chromolaena odorata*, whilst one pair was in dense vegetation at the edge of degraded forest (Demey 2006). These records are the westernmost to date.

*Mamou.*—Singing birds found at four different sites just south of Mamou, at the edge of the Fouta Djalon, in farmbush and degraded bush savanna at 728–887 m, on 6–9 May 2008.

*Konnonnkan.*—Two singing in farmbush (no *Chromolaena*) on the south-west slopes of Kounounkan Forest Reserve at 482 m on 12 May 2008.

*Sangarédi.*—In October 2010 four were found in north-western Guinea by M. B. Condé with the help of RD's tapes (*Bull. Afr. Bird Cl.* 18: 98).

**Sierra Leone (FD-L, RJD, RD)**

*Gola Forest* (a new locality, *cf.* Fishpool 2000: 225).—During a five-week survey in Gola in 2007 (Dowsett-Lemaire & Dowsett 2008), i.e. within the evergreen rain forest zone, the species was found only outside forest, in low second growth or farmbush at two sites. Both observations were made in an extensive area of regrowth 2–4 m tall, dominated by the invasive exotic shrub *Chromolaena odorata* 2–3 m high, overtopped by the pioneer tree *Harmgana madagascariensis*, which reached a height of 4 m. A few taller trees were dotted about, including oil palms *Elaeis gnineensis*. At the first location (south of Gola West, 29 January), one bird flew across a small path chased by another, alighted on a bush at a height of *c.*2 m and gave a few *wik* calls and short songs (tape-recorded). Other characteristic birds in the area included Little Greenbul, Brown Illadopsis, Green Crombec *Sylvietta virens* and Western Bluebill *Spermophaga haematina*. One was also heard at Tunkia Nema, edge of Gola East, 6 February. The altitude of these localities is between 100 and 200 m.

*Loma Mountains.*—During 18 days of field work in February–March 2008, RD heard three individuals at separate sites in low, dense shrubbery at the forest edge (next to the territory of a Sierra Leone Prinia) and in thick, bushy vegetation just inside rather open forest at 1,300–1,400 m, and one in farmbush at *c.*400 m.

**Liberia (RD)**

*Mount Nimba.*—Baumann's Greenbul has been known to occur in this area since Forbes-Watson's field work in 1967–71 (Colston & Curry-Lindahl 1986). It was found at three new sites in 2008–09, at Mount Gangra, Mount Tokadeh and the East Nimba Nature Reserve. At Mount Gangra, two were heard at 750 m (8 July 2008) and 837 m (13 January 2009) respectively, in dense shrubbery with *Chromolaena*; other species present at the second site included Little Greenbul, Grey-backed Camaroptera *Camaroptera brachyura*, Yellow-browed Camaroptera *C. superciliaris* and Red-cheeked Wattle-eye *Dyaphorophyia blissetti*. In the Tokadeh area, on 21 January 2009, one was heard in dense second growth at 505 m, where a Sooty Boubou *Laniarius leucorhynchus* was also present; a few hundred metres further at 520 m, a pair was foraging in shrubbery at the edge of cultivation 0.5–1.5 m tall, in the company of Grey-headed Bristlebill *Bleda canicapillus* and Yellow-browed Camaroptera. At East Nimba Nature Reserve, one was singing in *Chromolaena* within second growth at 509 m (15 July 2008). Previously, ten specimens had been collected in unknown habitats in the mine area (1,000–1,300 m) and at Grassfield at 550 m (Colston & Curry-Lindahl 1986, Fishpool 2000). Although it is reported to be rare to not uncommon in the north of the country by

Gatter (1997), this author states that Baumann's Greenbul is a fairly common canopy species in montane primary and secondary forest at Nimba and not an undergrowth species, which is incorrect.

**Ivory Coast (RD)**

Prior to 2000, Baumann's Greenbul was known only from Béoumi, where three specimens were collected by Lowe in 1922 (Fishpool 2000).

*Mont Péko National Park.*—This locality was added by Fishpool (2001), based on two birds mist-netted by H. Rainey in 2000 at *c.*940 m, in scrubby forest (H. Rainey *in litt.* 2001, and *in Bull. Afr. Bird Cl.* 8: 64).

*Mont Sangbé National Park.*—In April–May 2001, ten pairs were found at four sites in this national park. The birds occurred in the lower stratum of dense vegetation with *Chromolaena* at the edge of degraded forest patches, shrubbery and gallery forest. The song was tape-recorded here for the first time. The birds responded vigorously to playback, approaching the source of the sound whilst calling constantly, remaining mostly hidden, but sometimes flying over the observer and perching briefly in the open at a height of 4–5 m. In February 2002, the species was found at two additional sites within the park, including in the south-west, where five pairs were encountered along *c.*5 km of track. Unlike in April, the birds were mostly silent but responded to playback. One (or a pair) was in a mixed-species flock with Grey-headed Bristlebill, Green Hylia *Hylia prasina*, Blue-headed Crested Flycatcher *Trochocercus nitens*, etc.

*Mont Tonkoui.*—A pair was observed in dense vegetation along the track up the mountain in April–May 2001 and February 2002 at *c.*400–500 m.

**Ghana (FD-L, RJD)**

During 2004–05 and 2008–10 a total of 15 months was spent surveying the country's wildlife reserves and a large proportion of the forest reserves in the rain forest zone of the south-west, as well as in the forest–savanna transition zone. Prior to these surveys the species was confirmed from just three localities, all in the forest–savanna transition zone: it was collected at Ejura by Lowe, near Mount Kyabobo by Moyer and mist-netted at Cape Coast by Karr (Fishpool 2000).

We found this greenbul at >20 new localities. We met it most commonly in the hills of eastern Ghana, from Kyabobo National Park south to Amedzofe and Tanyigbe (for a full list of localities, see the Gazetteer). The species' ecology was studied in some detail in Kyabobo (Dowsett-Lemaire & Dowsett 2007), where the range of habitats used is representative of the forest–savanna transition zone of the eastern highlands. From Kyabobo south to Amedzofe, Baumann's Greenbul was invariably found in dense herbaceous or shrubby cover close to the ground, in the following situations: low farmbush (old cassava or maize fields invaded by tall grass and frequently by *Chromolaena odorata*), rank grass and shrubs (e.g. *Alchornea cordifolia*) near streams, thickets in gardens, rank growth (often with *Chromolaena*) in forest clearings, thickets at the edge of riparian forest and in 'transition woodland' (mixed woodland and forest trees, with some lianas) or in open forest under broken canopy. Baumann's Greenbul was seen feeding low down, 0.5–1.2 m above ground, hopping from stem to stem; it occasionally perched in a shrub or small tree when alarmed, or provoked by playback, but was never seen perched at a height above 4–5 m. The other main bird species found in the more open situations were Little Greenbul and Simple Leaflove *Chlorocichla simplex*, Green Crombec and Grey-backed Camaroptera. In thickets within broken forest, other usual associates also included Grey-headed Bristlebill, White-throated Greenbul, Red-cheeked Wattle-eye, Brown and Puvel's Illadopsis *I. puveli*, and Sooty Boubou. The overall

altitudinal range is 200–760 m (Amedzofe). Kyabobo National Park lies a few kilometres north of the locality where D. Moyer (*in* Fishpool 2000) collected a specimen in 1994, at an altitude of 610 m. Moyer described the general area but not the specific habitat occupied by the greenbul, and one might be misled into believing that it occurs there inside mature, closed forest.

In Kalakpa National Park, in the coastal plains of south-east Ghana (50–80 m), the forest forms several broad galleries in the Kalakpa River basin and is rather dense (Dowsett-Lemaire & Dowsett 2011c). Baumann's Greenbul was widespread on the lower edges, in dense understorey of transition woodland (under *Acacia*, *Anogeissus*, *Antiaris* and even teak *Tectona grandis*) as well as in low second growth with creepers and vines 1–2 m high under scattered exotic *Leucaena*, just outside the park's boundary. White-throated Greenbul was present alongside Baumann's in areas of broken-canopy forest.

In the transition zone of western Ghana, the greenbul is far more local and is common only in a narrow strip of secondary thickets, extending from 07°10'N to 07°25'N (*cf.* Gazetteer).

Surveys of the rain forest zone in the south-west suggest that the species is generally absent (e.g. in extensive areas of farmbush surveyed around 05°15'–06°30'N), except at the margins of this region. Thus one pair was found once in a clearing at the eastern edge of Bia National Park (*c.*150 m; Dowsett-Lemaire & Dowsett 2011a), and one bird was seen in *Chromolaena* farmbush below the Atewa Range (*c.*300 m), from where there are subsequent records (Dowsett-Lemaire & Dowsett 2011b). An earlier record accepted by Fishpool (1999, 2000) for the south-west is from Cape Coast, where Karr (1976), mist-netted and photographed the species in second growth—this is within the narrow coastal forest–savanna transition zone, but it must be uncommon there as we have not found it again.

The species appears commoner in the transition zone north of the forest zone, as in the south of Digya National Park (Dowsett-Lemaire & Dowsett 2009). Here it occurs in low growth at the edge of dry forest (with *Chromolaena odorata*), in low weedy thickets (with no *Chromolaena*) near the Obosum River, and in semi-open riparian forest on the Sumi River. Further west, it is or was locally common in the Afram Headwaters Forest Reserve, in a degraded section of this dry, semi-evergreen forest, in thickets under very light canopy, but the forest here is fast being destroyed by farmers (2010). It coexisted with White-throated Greenbul, Capuchin Babbler *Phyllanthus atripennis* and several *Illadopsis* species. Further west still, it is very common in derived thickets (following the destruction of forest) between Sunyani and Berekum, and at Pamu Berekum, alongside species such as Sooty Boubou and Red-cheeked Wattle-eye. It is in this area (Nsoatre) that C. M. Hewson (*in litt.* 2010) mist-netted two birds in full primary moult in November 2010.

**Togo (FD-L, RJD)**

Previously known only from four specimens, all taken in the western highlands, including the type collected by Baumann at Misahöhe (near Klouto) in 1895 (Fishpool 2000). Klouto was visited on 21–24 February 2010, and much of the western highlands on 18 March–4 April and 1–5 May 2011. Baumann's Greenbul was found throughout, i.e. at nine new localities, from Dikpéléou and Assoukoko forest south to Dzogbégan and Klouto (see Gazetteer for a full list). Altitudinal range was 230 m (Djodji) to 790 m (Dzogbégan). The range of habitats was identical to that in the highlands of eastern Ghana; the species was found locally alongside its congener, White-throated Greenbul, under light-canopy forest (Diguengué, and 10 km east of Kougnohou).

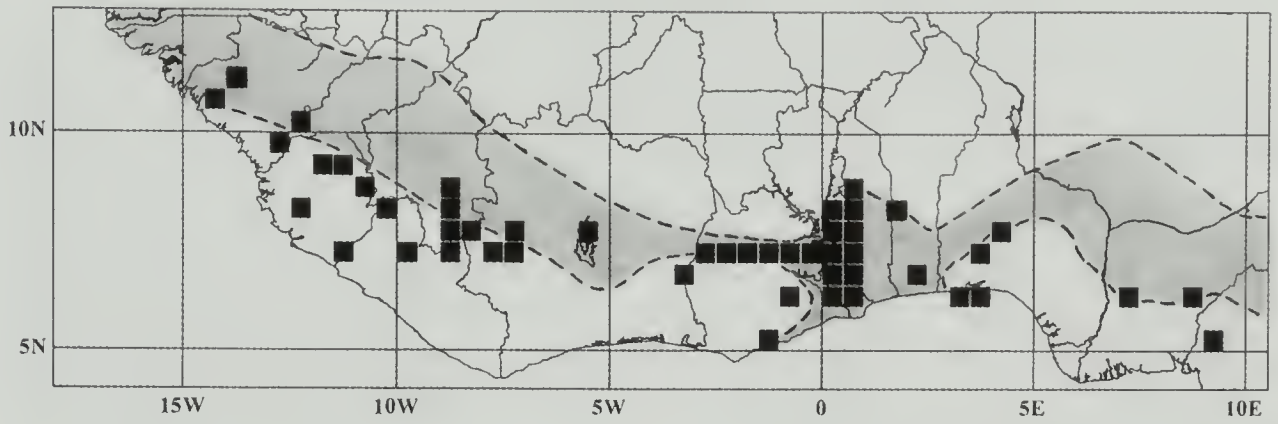


Figure 1. Map showing range of Baumann's Greenbul *Phyllastrephus baumanni*, with reference to the Guineo-Congolian / Sudanian transition zone (shaded). The position of the transition zone is based on White (1983), with slight modifications. The Guineo-Congolian forest biome is between the transition zone and the coast.

**Benin (FD-L, RJD)**

During a six-week survey of southern Benin in January–February 2009, Baumann's Greenbul was found in the Forêt Classée de la Lama, a large remnant of dry semi-evergreen forest and transition woodland (*c.*4,500 ha; 20–60 m altitude). These are the first records for Benin (Dowsett & Dowsett-Lemaire 2011). Some forest was cultivated until the 1980s and these sections have since reverted to transition woodland, with a canopy cover of 40–50% (mostly *Anogeissus leiocarpus* and *Lonchocarpus sericeus*). This is where Baumann's Greenbul occurs, confined to low dense growth with a mixture of *Chromolaena* and low thickets of *Lecaniodiscus cupanioides* and other species. The bird is locally very common and coexists with White-throated Greenbul in situations where woody thickets are more extensive and the canopy denser. In the one place where we erected a few mist-nets, four of each greenbul were caught together in the same mixed party and they were seen together elsewhere in the vicinity. Other common understorey species in this area included Grey-backed Camaroptera, Puvel's and Brown Illadopsis, and Red-cheeked Wattle-eye.

In April 2011 Baumann's Greenbul was found commonly at Tobé farm (edge of the Forêt Classée d'Agoua), an 800-ha area of woodland and fields that has regenerated into transition woodland and dry *Anogeissus* forest since it has been protected. The species was heard throughout the low dense understorey. The region between Lama forest and Tobé has not yet been surveyed and the gap between the two locations is probably artificial (*cf.* Fig. 1).

**Nigeria (RD)**

The vocalisations of a bird tape-recorded in dense shrubbery at the edge of degraded forest at the International Institute of Tropical Agriculture, Ibadan, in December 1997, were later identified as Baumann's Greenbul. L. D. C. Fishpool (*in litt.* 2010) tape-recorded the species at the same location on 21 October 2002, in the degraded, regenerating forest with *Chromolaena* in clearings. There was already a specimen record from Ibadan (Fishpool 2000).

**Cameroon**

The species was discovered in 2006 in an area of farmbush (fallow cassava fields overgrown with *Chromolaena*) outside Korup National Park at an altitude of *c.*250 m, where four were mist-netted in the Abat-Mgbegati-Basu area (Bobo *et al.* 2007). A male caught on 25 February was in primary moult, while a female on 7 March was laying.

## Discussion

The known range of Baumann's Greenbul now extends from north-west Guinea and Sierra Leone to western Cameroon (Fig. 1), taking Fishpool's (2000) verified records as a base, with the addition of many new localities (all listed in the Gazetteer).

On the basis of our observations, and of several specimens and confirmed sight records accepted by Fishpool (2000), Baumann's Greenbul appears to be fairly common in the forest–savanna transition zone, or Guineo-Congolian / Sudanian transition zone of White (1983). It is also common in the (sub)montane forest–grassland mosaic of the Nimba and adjacent highlands which White (1983) included in the rain forest zone *sensu stricto*, but which is close to and perhaps best placed in the transition zone. Within this belt, the bird occupies open areas invaded by dense low growth, i.e. natural clearings in semi-evergreen forest patches, or thickets in transition woodland, but also any other vegetation type that conforms to the appropriate facies, i.e. old cultivation invaded by rank grass and shrubs. We have never found it in the closed interior of forest, or more than 4–5 m above the ground. G. Field (*in* Fishpool 2000) mentions observing the species not just in undergrowth (e.g. streamside tangles) but 'also in the open mid-layer', alongside such species as Lemon-bellied Crombec *Sylvietta denti*: this we are unable to confirm, in more than 120 days of observations. In western Ghana the forest–savanna transition zone is very reduced, occupying a small strip between 07°00′ and 07°30′N: the distribution of the greenbul fits so closely within this that it occupies a band of territory no wider than *c.*10–15 km.

Although Fishpool (2000) wrote that the species 'penetrates a little way into the Sudanian woodland zone' along the Ghana–Togo border, this would seem not to be the case. Fishpool placed the specimen record of Moyer (at 08°16′N) just north of the transition zone, but all of Kyabobo National Park is within this belt (Dowsett-Lemaire & Dowsett 2007). The northernmost records of the greenbul in this area are now at Koue, right on the border with Togo, at 08°31′N: this is on the northern edge of the transition zone, where dry *Anogeissus* semi-evergreen forest and transition woodland still occur. Fishpool's map also places some of the forest area on the Ghana–Togo border within the Guineo-Congolian biome. However, White (1983) included all of this area within the Guineo-Congolian / Sudanian transition zone, and the dry semi-evergreen forests of the region, mixed with transition woodland and small pockets of Sudanian woodland, certainly belong there (FD-L & RJD pers. obs.).

With reference to the Guineo-Congolian rain forest zone away from highlands, Baumann's Greenbul has been found only outside forest and mostly at or near the margins of this biome, either in extensive fire-created clearings (e.g. Bia National Park) or, more often, in second growth in old cultivation. In the latter situation it is almost invariably associated with the shrub *Chromolaena odorata*, a blue-flowered exotic Compositae originating in South America. In Ghana it was widely planted in the 1960s to suppress weed growth under electricity pylons (!) and thereafter spread extremely quickly (Hall *et al.* 1972; W. Hawthorne *in litt.* 2005). This weed grows faster after fire than native vegetation and is now considered to be an invasive pest. To some extent, however, birds seem to benefit from this aggressive weed: small sunbirds feed on the nectar and various insectivorous passerines take insects on its leaves. In Sierra Leone FD-L & RJD observed Tit-Hylias *Pholidornis rushiae* and Chattering Cisticolas *Cisticola anonymus* taking numerous white aphids from below the leaves. In Ghana this plant attracts large numbers of aphids, themselves attacked by Syrphid larvae (Hall *et al.* 1972). Although not native, *C. odorata* has close African relatives in the genus *Eupatorium* taken in a broad sense (and in which *Chromolaena* was earlier placed; Hepper 1963), and at least some native insects seem to find it very palatable.

Within the Guineo-Congolian biome the greenbul appears absent from the south-west corner of Ghana (in the evergreen and moist semi-evergreen forest zone) and is similarly unknown from southern Ivory Coast. Further west, as in Sierra Leone, there are pockets of transitional vegetation (even Sudanian woodland) in the west of the country (pers. obs.), and in the north, at Bumbuna, evergreen forest abuts woodland (W. Hawthorne *in litt.* 2007), at 09°03'N, 11°44'W, thus the transition zone is probably more extensive than shown on the biome map of White (Fig. 1). In any case, it is possible that the greenbul will gradually expand its range into the forest zone in the wake of deforestation. In south-west Ghana, some savanna species such as Vieillot's Barbet *Lybius vieilloti* and Tropical Boubou *Laniarius aethiopicus* are slowly expanding into very large clearings opened by mining activities or agriculture.

Overall, the species occurs from near sea level to 1,300–1,500 m, reaching its highest elevations in the transition zone or in the submontane block of Mount Nimba, in Guinea and adjacent Liberia, and in the Loma Mountains of Sierra Leone.

One of the two easternmost records, in south-east Nigeria (Ebok Boje, 06°17'N, 08°55'E), is based on a bird mist-netted and photographed by C. M. Hewson (*in* Fishpool 2000) in an abandoned cassava field. The altitude is not as stated but lies between 300 and 600 m (Important Bird Area NG027 *in* Ezealor 2001). The location of this record just west of the Obudu Plateau prompted Fishpool (2000) to surmise that Baumann's Greenbul might come close or even compete with the Afromontane Cameroon Olive Greenbul *Phyllastrephus poensis* around 1,000–1,200 m. From what we now know of their respective ecology, this is rather unlikely. Cameroon Olive Greenbul is a true forest species, occupying the undergrowth under fairly closed canopy, where it spends much time probing the bark of low trees or saplings, less often in small clearings under gaps (pers. obs. in Cameroon and Nigeria). The recent record of Baumann's in western Cameroon is from farmbush 2.5 m tall, at an altitude of *c.*250 m (Bobo *et al.* 2007).

In several open forests of the transition zone, Baumann's Greenbul coexists with another *Phyllastrephus*, White-throated Greenbul (from at least Ghana to Benin). FD-L & RJD have not observed any aggressive interactions between them, although they are rather similar in size (Table 1) and they appear to occupy the same layer of vegetation. There are

TABLE 1

Measurements of Baumann's *Phyllastrephus baumanni* and White-throated Greenbuls *P. albigularis*. Wing length = max. chord, bill = from base of skull, and most weights taken using a portable electronic balance. The mass sample of *P. baumanni* under 'RJD' includes two measured by Karr (1976) and two by C. M. Hewson (*in litt.* 2010); weight data for this species in Keith (1992) are from Colston & Curry-Lindahl (1986).

| | RJD (unpubl.) | Keith (1992) |
|---|---|---|
| Wing (mm) | | |
| *P. baumanni* (m) | 79.5–81.0 (80.1, *n* = 4) | 71–82 (77.9, *n* = 10) |
| *P. baumanni* (f) | 71, 75 (*n* = 2) | 69–72 (70.5, *n* = 4) |
| *P. albigularis* (m) | 79–88 (82.5, *n* = 39) | 80–89 (83.5, *n* = 12) |
| *P. albigularis* (f) | 68–79 (72.3, *n* = 32) | 66–76 (72.8, *n* = 12) |
| Bill (mm) | | |
| *P. baumanni* (m) | 19, 21 (*n* = 2) | 20–22 (20.6, *n* = 10) |
| *P. baumanni* (f) | 18, 21 (*n* = 2) | 17.5–21.0 (19.0, *n* = 4) |
| *P. albigularis* (m) | – | 20–22 (21.2, *n* = 12) |
| *P. albigularis* (f) | – | 18–20 (19.0, *n* = 12) |
| Mass (g) | | |
| *P. baumanni* (m) | 27.0–30.5 (29.5, *n* = 7) | 27.3–32.9 (30.3, *n* = 5) |
| *P. baumanni* (f) | 22.4–25.3 (24.1, *n* = 3) | 23.5–26.5 (24.9, *n* = 4) |
| *P. albigularis* (m) | 21.9–34.0 (25.5, *n* = 38) | 24–31 (27.5, *n* = 23) |
| *P. albigularis* (f) | 17.5–29.9 (20.3, *n* = 31) | 17–28 (21.9, *n* = 24) |

no differences in bill length, and although the males of White-throated appear, on average, longer winged, they are lighter in weight. The two greenbuls overlap where patches of transition woodland or very open forest (the domain of Baumann's) are gradually closing towards denser forest, thus bringing the two species into contact. This phenomenon may not be more than of brief temporal duration, but the feeding ecology of the two species in such circumstances would repay further study.

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**Gazetteer of localities, new since Fishpool (2000)**

*Benin*
Forêt Classée de la Lama ..... 06°58′N, 02°05′E
Tobé farm ..... 08°19′N, 01°50′E

*Cameroon*
Abat-Mgbegati-Basu ..... 05°22′N, 09°13′E

*Ghana* (F.R. = Forest Reserve, N.P.= National Park)

*East of the Volta, from north to south*:
Kyabobo N.P. ..... 08°20–31′N, 00°35′E
Chai F.R. ..... 08°06′N, 00°23′E
Apepesu F.R. ..... 07°52′N, 00°34′E
Tolome ..... 07°43′N, 00°36′E
Kabo River F.R. ..... 07°33′N, 00°25′E
Odomi F.R. ..... 07°21′N, 00°29′E
Togo Plateau F.R. ..... 07°20′N, 00°24′E
Likpe Todome ..... 07°11′N, 00°36′E
Afadjato Mountain ..... 07°01′N, 00°34′E
Liati Wote ..... 07°01′N, 00°31′E
Amedzofe ..... 06°50′N, 00°26′E
Biakpa ..... 06°50′N, 00°24′E
Tanyigbe ..... 06°42′N, 00°31′E
Akuete ..... 06°34′N, 00°38′E
Kalakpa N.P. (north) ..... 06°27′–06°28′N, 00°20′–00°30′E

*West of the Volta, from north to south*:
Nsoatre (between Sunyani and Berekum) ..... 07°25′N, 02°30′W
Pamu Berekum ..... 07°20′N, 02°50′W
Afram Headwaters F.R. ..... 07°14′N, 01°44′W
Digya N.P. (south) ..... 07°08′–07°15′N, 00°09′–00°28′W
Bia N.P. ..... 06°35′N, 03°05′W
Below Atewa Range ..... 06°13′N, 00°34′W

*Guinea*
Kounounkan Forest Reserve ..... 09°31′N, 12°52′W
Mamou ..... 10°14′–10°19′N, 12°06′–12°08′W
Mont Béro ..... 08°08′N, 08°34′W
Pic de Fon, lowland forest (*c*.570 m) ..... 08°31′N, 08°56′W
higher altitudes (957 m) ..... 08°29′N, 08°54′W
(1,189–1,494 m) ..... 08°32′N, 08°54′W
Sangarédi ..... 11°06′N, 13°46′W
Sarabaya ..... 10°45′N, 14°26′W

*Ivory Coast*
Mont Péko ..... 07°05′N, 07°13′W
Mont Sangbé (Parc National) ..... 07°58′N, 07°14′W
..... [between 07°51′–08°10′N and 07°03′–07°23′W]
Mont Tonkoui ..... 07°24′N, 07°36′W

*Liberia*
Mount Nimba area:
East Nimba Nature Reserve ..... 07°26′N, 08°35′W
Mount Gangra ..... 07°32′N, 08°37′W
Mount Tokadeh ..... 07°27′N, 08°39′W

*Sierra Leone*
Gola East (Tunkia Nema) ..... 07°24′N, 11°13′W
Gola West (southern edge) ..... 07°22′N, 11°17′W
Loma Mountains, 1,300–1,400 m ..... 09°12′N, 11°08′W
Loma Mountains, *c.*400 m ..... 09°13′N, 11°11′W

*Togo* (from north to south)
Dikpéléou ..... 08°13′N, 00°37′E
Diguengué (Assoukoko forest) ..... 08°04′N, 00°38′E
Assoukoko ..... 08°01′N, 00°38′E
Djodji (= Kessibo-Wawa) ..... 07°41′N, 00°35′E
Kougnohou (10 km east of) ..... 07°38′N, 00°51′E
Bénali ..... 07°35′N, 00°44′E
Kpété Béna ..... 07°26′N, 00°36′E
Dzogbégan (Danyi) ..... 07°14′N, 00°42′E
Klouto ..... 06°58′N, 00°35′E

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# *Charadrius wilsonia brasiliensis* Grantsau & Lima, 2008, is a junior synonym of *Charadrius crassirostris* Spix, 1825

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SUMMARY.—We demonstrate that the recently described *Charadrius wilsonia brasiliensis* Grantsau & Lima, 2008, is a junior synonym of *Charadrius crassirostris* Spix, 1825. The type locality of the latter taxon is 'Brasilia' [=Brazil] and most probably was collected at Ilhéus in the state of Bahia, north-east Brazil.

Wilson's Plover *Charadrius wilsonia* is a medium-sized wader distributed along coasts of North, Central and South America. In all plumages, the bill is black and heavy in appearance, the upperparts are greyish to greyish brown, the underparts white, with a black to brownish breast-band, and the legs pinkish to pinkish grey. In breeding adults, the breast-band, lores and forecrown are black in males, but grey-brown tinged rufous in females. Non-breeding adults are similar to breeding females, but lack any rufous tones. Geographic differences in the coloration of the upperparts, face and head patterns, and width of the breast-band has led to the recognition of at least three subspecies. *C. w. wilsonia* Ord, 1814, breeds along Atlantic and Gulf coasts of North and Middle America south to Belize, as well as in the Bahamas and northern Lesser Antilles, and is thought to spend the non-breeding season along the Gulf coast south to Brazil. *C. w. beldingi* (Ridgway, 1919) breeds along the Pacific coast from central Baja California to Panama, and in north-west Peru, whilst *C. w. cinnamominus* (Ridgway, 1919) is resident from north-east Colombia to French Guiana, and on islands off Venezuela north to the Lesser Antilles (Hayman *et al.* 1986, Piersma & Wiersma 1996, Corbat & Bergstrom 2000).

Ord (*in* Wilson & Ord 1814: 77–78, pl. LXXIII: fig. 5) described and illustrated *C. wilsonia* based on three specimens, two males and a female, collected 'on the shore of Cape May, New Jersey', USA. Ridgway (1919) proposed two new subspecies, originally named *Pagolla wilsonia beldingi* (pp. 108, 112) and *P. w. cinnamomina* (pp. 108, 113). Their type specimens originate, respectively, from La Paz in Baja California, Mexico, and Sabanilla in Colombia. The three races are similar, but the nominate lacks rufous in the plumage except on the ear-coverts. In *C. w. cinnamominus*, the crown is strongly rufous, males exhibit mixed rufous and black in the breast-brand, and females are strongly gingery over the mask and breast-band. *C. w. beldingi* is darker above than the nominate, and has a broader mask, less white on the forehead, narrower supercilia and breast-band, and more rufous on the crown, nape and breast-band (see, e.g., Hayman *et al.* 1986, Piersma & Wiersma 1996).

Recently, Grantsau & Lima (2008) described a new subspecies of Wilson's Plover, based on three specimens, an adult male (holotype), adult female and an unsexed adult (paratypes), from a population breeding in north-east Brazil, naming it *C. w. brasiliensis*. According to them, *C. w. brasiliensis* closely resembles nominate *wilsonia* of the USA, but adult males have a narrower, blackish-brown, not black, breast-band, less black on the face and less rufous on the ear-coverts. Adult females also differ from the nominate form in having a grey-brown wash, not rufous, over the ear-coverts.

Aside from any discussion of validity and / or the taxonomic rank of *C. w. brasiliensis*, which is beyond the scope of this paper, as we will demonstrate, there is an available name,

*Charadrius crassirostris* Spix, 1825, which can be safely applied to those Wilson's Plovers breeding in Brazil.

## The identity of the type specimen of *Charadrius crassirostris* Spix, 1825

In 1824–25, the German zoologist Johann Baptist von Spix published the two-volume *Avium species novae*, a large work in which he described many new bird species from Brazil. Spix (1825) described a plover under the name *Charadrius crassirostris*, as follows (*cf.* Appendix for original text in Latin).

> 'Small, upperparts brown verging on white, underparts white, collar and head blackish brown, forehead, supercilium, and middle of the neck white, beak thick toward apex'.
>
> 'Body hardly larger than that of *Tringa pusilla*, upperparts greyish brown, under parts white; head pale brownish, forehead and eyebrow white; throat white; collar above the chest blackish-brown, back and tertials of the wing pale brownish, remiges brown-black, white at base, rachis white; knee with a spinous tubercle, underside of wing totally white; tail not longer than wings, central rectrices brownish black, outer rectrices white; bill dark, hardly shorter than the head, thick at apex, cylindrical, subdentate; legs red, toes short. Body length 7⅓" [178 mm], tail 2" [50 mm], bill 10" [25 mm], tarsus 13"[33 mm], feet 2' [5 mm].' (Spix 1825: 77)

An illustration of *C. crassirostris* also appeared on plate XCIV of Spix (1825), which is reproduced here (in black and white) as Fig. 1. The bird described and illustrated by Spix (1825: 77, pl. XCIV) has a heavy, dark bill with both mandibles curving evenly to a dagger-like pointed tip, a white forehead continuous with the white supercilium, a white hindneck collar, greyish-brown upperparts, a blackish-brown breast-band and red legs. These characteristics clearly identify the bird as an adult *C. wilsonia* from the population breeding in north-east Brazil. Its measurements (i.e. total body length, bill, tail and tarsus) confirm the identification.

Figure 1. Reproduction in black and white of plate XCIV of Spix (1825) named *Charadrius crassirostris*.

Two other *Charadrius* plovers occur in north-east Brazil, often sympatrically with Wilson's Plover: Semipalmated *C. semipalmatus* Bonaparte, 1825, and Collared Plovers *C. collaris* Vieillot, 1818 (e.g. Sick 1997, Fedrizzi 2003, Lima 2006, Albano *et al.* 2007). However, Semipalmated Plover possesses an overall darker, grey-brown back, a stubby, two-toned bill (base often orange-yellow), and orange-yellow legs and feet. Collared Plovers, in contrast, are smaller than Wilson's Plovers (14–15 cm vs. 16.5–20.0 cm in total length), have a slender,

all-black bill, flesh-pink to yellowish legs, and lack a white hindneck collar (Hayman *et al.* 1986, Piersma & Wiersma 1996).

Spix (1825) provided no detailed information on the number of specimens, type location or date of collection in his original description of *C. crassirostris*. However, because the original description is written in the singular, it appears reasonable to assume that it was based on a single specimen, which, according to Art. 73 of the *International code of zoological nomenclature* (ICZN 1999) would then be the holotype by monotypy.

Soon after joining the staff of the Museum of the Bavarian Academy of Sciences (now the Bavarian State Collection for Zoology) in 1903, Carl Eduard Hellmayr set himself to study thoroughly the collection of birds obtained by Spix in Brazil. This resulted in the publication, in 1906, of Spix's types of Brazilian birds, wherein he commented as follows (translated from the German) on a single specimen upon which the description of *C. crassirostris* was based.

> 'This bird is in complete accordance with specimens [of *Ochthodromus w. wilsonia* = *C. w. wilsonia*] from the south-east USA and by no means belongs to *O. w. rufinucha* (Ridgway). The periocular, head side and throat are dark as in various specimens from Florida, and only in the auricular region it exhibits a slight trace of rusty coloration. In *O. w. rufinucha*, of which I have a nice suite of specimens from Jamaica and Trinidad at hand, the head side and neck always have a clear ochre-rusty wash. Thus, Spix's type must have been a bird migrating from the north.' (Hellmayr 1906: 715)

Several years later, in his extensive revision of the ornithology of the north-east Brazilian states of Maranhão, Piauí and Ceará, Hellmayr (1929) compared two specimens, a male and a female, of *C. wilsonia* collected by the German ethnographer Emil-Heinrich Snethlage in Maranhão with the type of *C. crassirostris* and other specimens from North America and the Caribbean, and concluded:

> 'Like the type of *Charadrius crassirostris* Spix, with which it was directly compared, our male has but a few feathers behind the auriculars faintly tipped with pinkish cinnamon, while the jugular band, in both, is blackish, indistinctly edged with pale brownish. They are matched by numerous individuals from the United States and the Bahamas [...] The same applies to the female which differs from ten specimens of the Caribbean breeding race by the complete absence of any rufescent tinge whatsoever on head and jugular band, and cannot be distinguished from females of Wilson's Plover.' (Hellmayr 1929: 492)

Finally, Hellmayr & Conover (1948) commented, in a footnote, on some specimens of *C. wilsonia* collected in Brazil:

> 'Eight specimens taken in winter (between September and April) on the coast of Brazil agree well with the type of *C. crassirostris*, and, while matched by numerous individuals from the United States, look very different from *C. w. cinnamominus* [...] Five (out of six) Brazilian females have the jugular band entirely grayish brown and no rufescence whatsoever on sides of head, while the sixth individual shows a slight rusty tinge on both these parts, the series being thus exactly similar to females from the United States.' (Hellmayr & Conover 1948: 75)

From the information above, it is clear that the closer resemblance to Spix's type with specimens of Wilson's Plover from the USA led Hellmayr (1906) to regard *C. crassirostris* as a synonym of *C. wilsonia, contra* Grantsau & Lima (2008) who stated that Hellmayr offered no rationale for his opinion. Also note that Hellmayr (1906, 1929) thought that Wilson's Plovers specimens collected in Brazil were migrants from North America.

## Status of Wilson's Plover in Brazil and *Charadrius wilsonia brasiliensis* Grantsau & Lima, 2008

The status of *C. wilsonia* in Brazil has attracted some debate. Initially, the species was assumed to be a migrant from North America, and thus the birds belonged to the nominate subspecies, because no evidence of breeding in Brazil existed prior to the late 1980s (e.g. Hellmayr 1906, 1929, Hellmayr & Conover 1948, Pinto 1938, 1964, 1978, Pinto & Camargo 1961, Sick 1985). However, since the early 1990s, breeding data for *C. wilsonia* along north and north-east Brazilian coasts have accumulated (Rodrigues *et al.* 1996, Sick 1997, Fedrizzi 2003, Lima 2006, Albano *et al.* 2007, Grantsau & Lima 2008, Lunardi & Macedo 2010). Today, it is well established that birds breeding in Brazil do not exhibit any seasonal variation in abundance, being always observed in small numbers year-round, and a ringed *C. wilsonia* from North America has never been recovered there (e.g. Lara-Rezende 1982, Azevedo-Júnior *et al.* 2001, Fedrizzi 2003, Schulz-Neto *et al.* 2008, Mestre *et al.* 2010). Wilson's Plovers are regarded as a 'not completely migratory species'; some remain in the nesting areas all year, while others are short-distance migrants (Corbat & Bergstrom 2000). The evidence currently available does not support the view that North American birds reach Brazil.

At the tenth Brazilian Congress of Ornithology, held in Fortaleza on 3–8 November 2002, Rolf Grantsau, Pedro C. Lima and two other colleagues presented a poster, wherein they postulated that the breeding population of *C. wilsonia* in north-east Brazil represents a distinct taxon, for which the name *C. crassirostris* Spix, 1825, is available. Grantsau and his colleagues explicitly stated that Spix's (1825) description of *C. crassirostris* matched specimens of '*C. wilsonia*' from north-east Brazil. Although not valid from a taxonomic or nomenclatural standpoint, the abstract, published in the congress booklet, proposed revalidating *C. crassirostris* as a subspecies of *C. wilsonia* (Grantsau *et al.* 2002). Subsequently, Lima *et al.* (2002) even referred to Wilson's Plovers breeding in the state of Bahia, north-east Brazil, as *C. w. crassirostris*. Quite surprisingly, in describing their 'new subspecies', Grantsau & Lima (2008) rejected the name *C. crassirostris*, stating that Spix's type cannot be certainly identified because it is no longer extant, and because no locality was given in its description. However, the locality ('Brasilia') was given and the type has been found.

Figure 2. Lateral and ventral views of the type specimen of *Charadrius crassirostris* Spix, 1825, in the Bavarian State Collection of Zoology, Munich, Germany (© Markus Unsöld, Bavarian State Collection of Zoology)

The building of the Bavarian State Collection of Zoology was severely damaged during World War II, and the specimen used by Spix (1825) to describe *C. crassirostris* was thought to be lost, as can be inferred from Reichholf (1983). Even if true, Spix's (1825) original description and accompanying plate, together with the information subsequently provided by Hellmayr (1905) would be sufficient to identify the type of *C. crassirostris*. However, the type specimen of *C. crassirostris* is still extant in the collection of the Bavarian State Collection for Zoology (Fig. 2) and there is no doubt that the birds described by Spix (1825) and Grantsau & Lima (2008) refer to the same taxon; consequently:

*Charadrius wilsonia brasiliensis* Grantsau & Lima, 2008
= *Charadrius crassirostris* Spix, 1824, **syn. nov**.

Doubts persist concerning the precise collection locality of Spix's specimen. Regrettably, Spix did not record such localities for most of his specimens, either in his *Avium species novae* or on his labels. The records, in many cases as here, simply state 'Brasilia' as the place of collection. Good information, however, exists concerning the route followed by Spix, and his colleague, the botanist Carl Friedrich Philipp von Martius, during their 1817–20 expedition to Brazil (Papavero 1971, Spix & Martius 1981, Paynter & Traylor 1991, Vanzolini 1992). Most time was spent at inland localities in the dry Caatinga (xeric shrubland and thorn forests) and Cerrado, but they remained in coastal Bahia between November 1818 and February 1819, and also collected specimens on the coasts of Maranhão and Pará in July 1819. It is reasonable to assume that the type of *C. crassirostris* was taken somewhere on the coast in one of these three states, but most probably at Ilhéus (14°49'S, 39°02'W; Paynter & Traylor 1991) in coastal Bahia, where Spix and Martius stayed for about two months.

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## Appendix: original description of *Charadrius crassirostris* Spix (1825: 77)

### Species I. CHARADRIUS CRASSIROSTRIS. Tab. XCIV.

Minor, supra brunneo canescens, subtus albus; collari capiteque fuscis: fronte, superciliis colloque medio albis; rostro versus apicem crasso.

Descriptio. Corpus *Tringa pusilla* vix maius, supra fusco-canescens; subtus album; caput pallide brunnescens, fronte, genis superciliisque albis; gula collarique albis; lora collareque supra pectus fusco-brunnea; dorsum tectricesque alarum albicanti-brunnescentes; remiges nigro-fuscae, basi albae, scapis albis, axillae spinoso-tuberculatae, alae subtus totae albae, cauda alis haud maior, rectricibus internis nigro-brunneis, externis albis; rostrum fuscum, capite fere brevius, verus apicem crassum, cylindricum, subdentatum; pedes rubris; digitus brevibus.

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# Joannes Maximiliaan Dumas, bird collector in the East Indies and New Guinea

*by Mary LeCroy & Justin J. F. J. Jansen*

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SUMMARY.—J. M. Dumas is one of the lesser-known collectors of natural history items in the former Dutch East Indies at the end of the 19th and beginning of the 20th centuries. We have been able to follow his activities between the ages of 38 and 55. In so doing, we have discovered that he interacted widely with other expeditions and collectors active in the area at that time and that his significant career can only be developed by summarising his involvement with many other people.

Many zoological collectors ventured into the islands of what is now Indonesia in the late 19th and early 20th centuries. Often their specimens were sold through dealers that specialised in natural history items to private or public collections, with few data available concerning the collector himself. Lord Walter Rothschild, whose large private collection was being assembled at this time, was an exception to this usual practice. Although he, too, purchased through dealers, whenever possible he had the collector send specimens directly to him. After selecting the specimens he wanted to purchase, the remainder were sent to dealers to sell for the collector (Rothschild 1983: 157–158). Rothschild and his bird curator, Ernst Hartert, were meticulous about crediting collectors for the bird specimens they studied, providing information in this respect that is often not available in other reports of the time. Most of these early collectors also collected mammals and other animals, but these collections are less well documented. Plant collectors, many of whom were the same

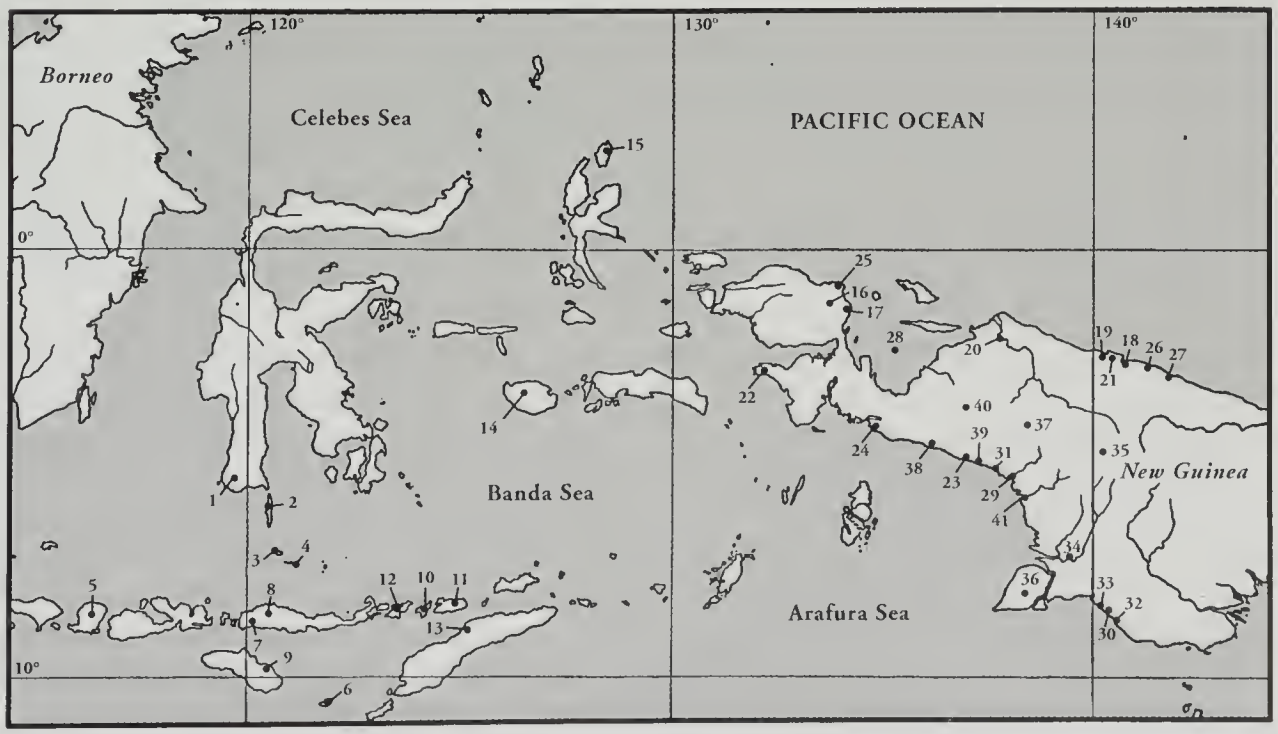


Figure 1. Map of main areas visited by J. M. Dumas, keyed to numbers within brackets in text and Gazetteer.

Figure 2. J. M. Dumas in Netherlands New Guinea (from Fotobureau, Koninklijk Instituut voor de Tropen, Amsterdam)

Figure 3. J. M. Dumas in Netherlands New Guinea (from Fotobureau, Koninklijk Instituut voor de Tropen, Amsterdam)

individuals, were thoroughly documented by van Steenis-Kruseman (1950). Appendix B provides coordinates for the localities mentioned in the text, while the localities shown in Fig. 1 are noted by numbers in brackets in the text and in the Gazetteer.

The collector we follow here is Johannes Maximiliaan Dumas, one of the lesser known of these intrepid men, but one who traveled widely as a collector and frequently interacted with other collectors of the period. He probably had more and wider experience in former Dutch New Guinea, now Papua Province, Indonesia, than any other single collector. 'Jan' Dumas was born on 22 June 1856 at Bagelen, Java, the son of Louis Maximiliaan Dumas. He attended school in Batavia (now Jakarta), but at the age of 16 quit school and became a planter at various locations in eastern Indonesia, later following a life of traveling, especially as a collector of natural history specimens (Dumas & Dumas 1997). Smythies (1957: 541) described Dumas as 'a Eurasian who travelled extensively (mostly in New Guinea) collecting birds and insects; he owned land in North Borneo [now Sabah], the tenants of which did not have to pay him rent, but in return yearly a dozen of them had to follow him on his travels—a delightfully feudal arrangement!'

As a bird collector, Dumas first came to our attention as an assistant to Alfred H. Everett, a well-known collector. It is not known exactly when Everett hired Dumas or whether they had been acquainted prior to the actual hiring. The fact that both Dumas and Everett had ties to Sabah in northern Borneo would indicate that this is a possibility.

Everett collected widely in the Philippines, supported by and reported on by the Marquis of Tweeddale (*ante* Viscount Walden / Arthur Hay) in a series of 12 articles in volumes of the *Proceedings of the Zoological Society of London* between 1877 and 1879. Everett certainly hired 'native collectors' during this period, but Tweeddale only once mentioned that Everett had been 'assisted' by his brother, Harold H. Everett, on Bohol Island. After Tweeddale's death in 1878 (Sharpe 1879b), Everett apparently continued to send specimens to the Natural History Museum (formerly the British Museum (Natural History), London,

Figure 4 Type specimen of Greater Melampitta *Mellopitta* (now *Melampitta*) *gigantea* Rothschild, 1899 (Matthew Shanley / American Museum of Natural History, New York)

Figure 5. Type specimen of Buru Thrush *Geocichla* (now *Zoothera*) *dumasi* Rothschild, 1899 (Matthew Shanley / American Museum of Natural History, New York)

BMNH). Beginning in 1876, Sharpe had begun a series of publications in *Ibis* on Everett's collections from Borneo that continued intermittently until 1894. Everett's 'hunters' are sometimes mentioned, but if Dumas was among them, he was not mentioned by name (Sharpe 1876, 1877, 1879a, 1888, 1894). In the last reference, Sharpe noted that Everett collected in the Sulu archipelago around July 1893, saying that he had been very ill on Sibutu Island and that the sexing had been done by his native hunters, but there was no mention of an assistant.

In late 1893, Lord Walter Rothschild was informed by Charles Hose, an explorer of inland areas of Sarawak, of Everett's plans to collect in the Natuna Islands. Rothschild (1894: 467) thereupon made arrangements with Everett to forward his collections directly to him for study. During this period, Rothschild was adding specimens of birds, mammals and butterflies to his growing private collection at his home in Tring, England, and had just begun publishing his own journal, *Novitates Zoologicae* (in 1894). The first collections Rothschild purchased from Everett were those from the Natuna Islands of Sirhassen and Bunguran, made in September and October 1893 (Rothschild 1894: 467). There was no mention of an assistant in the articles reporting on the bird and mammal collections (Hartert 1894, Thomas & Hartert 1894).

In his own report on the birds he collected on Balabac Island in December 1893 to early January 1894 and at Rocky Bay, Palawan Island, Philippines, during the latter half

of January and the beginning of February 1894, Everett (1895) noted 'native collectors' but made no mention of an assistant.

**November–December 1894** The second collection that Rothschild purchased from Everett comprised a small collection of birds from northern Mindoro Island and from Laguna de Bay, near Manila, Luzon Island, Philippines, made at the end of November and part of December 1894, and reported on by Ernst Hartert (1895a, 1895b). It was on this trip that Everett seriously injured his leg and was forced to return to his home on Labuan Island, Sabah (Hartert 1895a: 64), and to subsequently seek treatment in London. He met with Rothschild at this time and Hartert (1895b: 486) noted that Everett had recovered his health and had begun 'collecting again in other quarters.' It was shortly after this that Dumas was first mentioned, and we think that he was probably hired at this time because Everett needed assistance in the field, particularly at high altitudes, due to his leg injury. Dumas would have been 38 years of age at this point.

**September–October 1895** The 'other quarters' proved to be southern Celebes (now Sulawesi) Island, Indonesia, where Everett collected from September to October 1895 (Hartert 1896a). Here Everett mentioned his assistant, Dumas, who had three Borneo men with him (presumably his own tenants). On Sulawesi, Everett remained at the relatively low-altitude camp at Indrulaman, and it was Dumas and his men who established a base camp at the village of Tasoso, the highest village in the district, and collected above there at higher altitudes, 'for the most part between 6000 and 7000 feet, and not at all below 5600 feet' for 23 days. These specimens are labelled 'Bonthain Peak.' Everett filled in the front of the label, but the reverse is labelled 'Tasoso' by Dumas. Later, Everett said that it was his habit to add 'Nat. Coll.' (= native collector) next to the sex symbol on the label unless the specimen had been sexed by himself or his assistant. In the latter case there is no annotation after the sex symbol (Hartert 1897c: 514). Because Everett was extremely careful about the sexing of his specimens, the implication is that he placed a great deal of trust in Dumas by accepting his sexing of the specimens. Dumas, being a native Dutch speaker, was also probably additionally useful in dealing with Dutch authorities in various localities.

Dumas and his men were undoubtedly also collecting mammals, as Everett (*in* Hartert 1896a: 150) noted a number of mammals seen but not collected on the mountain and other mammals expected but not seen. Publication of these sight records indicates that Everett trusted Dumas' accuracy. We have not found a publication on the mammals collected.

While on Bonthain Peak (now known as Mount Lompobatang [1]), Dumas collected on the crest above Tasoso known as Buah Kraïing (Hartert 1896b: 149–150), and there he encountered Paul and Fritz Sarasin, who were also collecting on Sulawesi. In his report to Hartert, Everett included altitude and temperature readings given to Dumas by these collectors. The Sarasins (1905: 325–331) published a two-volume account of their travels and were at Tasoso on 28–30 October 1896 but did not mention meeting Dumas, nor was he mentioned by Meyer & Wiglesworth (1896) who reported on their collection, with new forms from the high altitudes first described by those authors. Because the new forms collected by the Sarasins were published first (Hartert 1896b: 149), fewer of the forms collected by Dumas proved to be undescribed. Nevertheless, Hartert (1896a,b) described four new forms based on material collected by Dumas and his men on Mount Lompobatang, and Stresemann (1931: 80) subsequently described another from Dumas' specimens (see Appendix A). Dumas and his men also must have assisted in the collecting at Indrulaman when they were not at the mountain camp, but only the Tasoso specimens can be with certainty credited to Dumas, as Everett himself wrote the labels on all of the specimens. Altogether, 165 species were collected on southern Sulawesi.

**November 1895** Everett then sent his men (presumably including Dumas) ahead to the island of Saleyar (now Selajar [2]), and later followed them there (Hartert 1896b: 165). The specimens are dated November 1895.

**December 1895** Specimens were also collected in December 1895, on Djampea (now Tanahjampea [3]) and Kalao [4] islands. Many new forms were described from these collections (Hartert 1896b: 165) but Everett filled in all of the labels, and it is not possible to identify any Dumas specimens from these islands.

**May–June 1896** Everett next collected on Lombok Island [5] in May and June 1896 (Hartert, 1896c). Even though a thorough collection was made, no new taxa resulted as William Doherty's collection from Lombok had arrived in the Rothschild Collection prior to Everett's. Although Everett wrote to Hartert that he had new men with him on Lombok because the men who had been with him on Sulawesi and the other islands had struck for higher wages than he was prepared to pay, Dumas remained his assistant (Hartert, 1896c: 592). Dumas ascended Mount Rinjani, in the northern mountains, and viewed the main crater of the volcano from the Sengkarien summit, second in height to Rinjani Peak, and his detailed description of the crater lake is included by Hartert (1896c: 592). Dumas has noted 'Sankarean, 4000' on the reverse of these specimens. A total of 103 species was collected on Lombok, and the presence of a large duck on the crater lake was reported, undoubtedly by Dumas.

**August–September 1896** Hartert (1897b) then reported on Everett's collection of 51 species (plus an additional four species reported as sight records) from Savu (now Sawu [6]) Island, made in August and September 1896. Everett collected on both the east and west ends of the island and at an intermediate station, but gave no information concerning an assistant. However, because Dumas was with Everett on Flores (see below), he was probably also on Sawu.

**October 1896** Everett had landed briefly at Endeh (now Ende), southern Flores Island, in August 1896, but had not been permitted to go inland and had only collected a few common birds. After collecting on Sawu, he returned to Flores in October 1896 (Hartert 1897a,c, 1898a). His headquarters were at a locality called 'Nanga Ramu' or 'Nanga Roma', which is the same as Nanga Ramut [7] (Mees 2006: 12–13, 229) on the south coast of Manggarai in western Flores. Here his 'hunters' succeeded in collecting up to *c.*1,525 m, but the lawlessness of the interior prevented his sending them further inland. The whole of his party was ill with dysentery and fever. Hartert (1897c: 514) quoted Everett: 'With regard to the sexing of the specimens, as on previous occasions the abbreviation 'nat. coll.' signifies that the native collector is solely responsible for its correctness, and where my initials follow the sex-symbol it means that I sexed such specimens with special care myself, and where the symbols appear alone the sex has been checked by my assistant or myself.' The 'assistant' is not named, but Mount Repok [8] was the mountain collecting locality, and this locality is written in Dumas' hand on the reverse of the labels on higher altitude specimens. A total of 114 species was collected, with 11 new forms based on Dumas' specimens (see Appendix A).

**September–December 1896** In September, October and December 1896 (Hartert 1898d: 466), Everett visited Sumba Island [9] and later twice sent a 'trained native' to Sumba, where he made a successful collection on the first visit but was less successful on the second visit and was dismissed. While Dumas may have been with Everett when he visited Sumba, the dismissed collector was 'a Sumbanese'.

**April–May 1897** Everett collected on Pantar Island [10] in April 1897, on Alor Island [11] (chiefly at Irána) in March–May 1897, and on Lomblen Island [12] for four days in May 1897. Hartert (1898c: 455) quoted Everett: 'I got a severe attack of intermittent fever (malaria), and

when off my head I think I must have kicked violently against something with my damaged leg—anyhow I burst a vein and the leg swelled to an enormous size. It was kept bandaged with ice for a week, and ultimately I was taken to the hospital in Makassar, where I am now slowly recovering from an operation.' There is no mention of Dumas relative to collecting on these islands (Hartert 1898c), but Everett must have been incapacitated during this time and would have needed an assistant.

**July–August 1897** Everett made an abortive attempt to collect on Timor in 1897 (Hartert 1898b: 112). He arrived at Atapupu [13] on 8 July 1897 and sent his men (unnamed) and supplies into the interior, to Fileran, with an interpreter. The interpreter apparently misrepresented Everett's purpose and as a result the local inhabitants were afraid to allow collecting, so he had to give up penetrating the mountains. A few specimens were collected at Fileran, but he had to withdraw his party quickly. Most collecting was done near Atapupu. All of his party were ill during this trip, and Everett noted (Hartert 1898b: 111): 'My servant [presumably Dumas] is down with strong fever, which does not seem inclined to get better, and I am not well myself.'

**February 1898** In February 1898 (Hartert 1900b: 549–550), Everett, who was in the hospital in Singapore and already suffering from his fatal illness, sent some of his 'trained Bornean bird-skinners' to the Lingga Islands to collect. The labels of the 39 species collected bear the date, sex and locality. Everett filled them in, but the collecting was probably done under Dumas' direction because the sex annotation is not followed by 'Nat. Coll.'.

**August–September 1898** Prior to his death in June 1898 in London (Anon. 1898: 606), Everett sent Dumas to collect on Buru Island, a collection made in August and September 1898 (Hartert 1899, 1900a, Stresemann 1914: 361). In Rothschild's partial list of his purchases (Archives, Dept. of Ornithology, American Museum of Natural History, AMNH) is a notation that he purchased 110 Buru specimens on 14 February 1899, whether directly from Dumas or from a dealer is not mentioned. This was apparently an approximate number, or others were purchased later, for there are now 113 specimens of 49 species in AMNH. They were collected mostly on Mount Mada (now Kapalatmada [14]) at about 915 m and bear Everett's printed labels with the locality, altitude, sex, iris colour and date written on the back in Dumas' hand, the front filled in by Hartert. Hartert thought Dumas should have gone higher, but noted that he sent a large collection of well-made bird skins with 'a surprising number of new forms'. Hartert was disappointed that often only single specimens of the new birds were obtained. Some specimens were also obtained at Kayeli on the east coast in October 1898 and a few from Bara on the north-west coast in September 1898. This collection was reported on by Rothschild (1899b) and Hartert (1899, 1900a). Hartert's (1900a) paper included specimens collected by William Doherty in March 1897 near the coastal town of Kayeli as well as those collected by Dumas. Fifteen new forms were described based on Dumas' specimens (see Appendix A).

**Late 1898** Rothschild noted in his 'Purchases' that on 8 March 1899 he selected 107 bird skins, plus 'two extra' (presumably bird skins) and one mammal (a cuscus) collected by Dumas on Morty (now Morotai [15]) Island. There was no indication whether he purchased them from Dumas or from a dealer. There are now 109 specimens of 66 species from Morotai in AMNH; the types of three new forms were Dumas specimens (see Appendix A). None of the Morotai specimens has original labels or dates and only the locality and Dumas' name were included on the Rothschild printed label. There are also 28 Dumas specimens from Morotai in the Netherlands Centre for Biodiversity Naturalis (formerly Rijksmuseum van Natuurlijke Historie, RMNH), Leiden, purchased on 28 February 1899 from D. W. Horst, resident in Amboina; 45 Morotai specimens were purchased by BMNH from Gerrard

in 1899 (Sharpe 1906: 361), but were said to have been collected by Everett (long after his death); and other specimens are widely scattered in many other collections.

Although we have been unable to document this, it seems likely that Dumas at this time became associated with C. W. R. van Rennessee van Duivenbode, a successful trader in many items including natural history specimens for scientific study and bird of paradise skins for the plume trade. His Nieuw Guinea Handelsmaatschappij (New Guinea Trading Company) headquarters were on Ternate Island, but he had a wide network of collectors working for him (Wichmann 1910–12: 172, Swadling 1996: 118). It was also at this point that Dumas was no longer using Everett's labels.

**January 1899** In January 1899, Dumas was collecting on the Vogelkop, western New Guinea, which at that time was administered by the Netherlands East Indies Government and is today the Indonesian province of Papua (formerly Irian Jaya). These specimens have printed labels, signed by Dumas and annotated 'Mt. Maori', 'Maori Mt.', 'Mt. Moari' or 'Moari Mt.', 3,000 feet, with the sex usually given. These specimens caused Rothschild and Hartert much confusion over many years.

On 24 June 1899, Rothschild noted in his 'Purchases' book that he 'Selected from Arfak skins, etc.' 68 bird skins and two mammals from C. W. R. van Renesse van Duivenbode. This purchase is also mentioned by Rothschild & Hartert (1901: 60). Despite Rothschild's entry and perhaps because some of the specimens were so labeled, they decided that this locality was near Humboldt Bay, now Yos Sudarso Bay, on the north coast of New Guinea rather than on the Vogelkop (Rothschild 1899a: 137) and might represent a hitherto unknown avifauna from the Cyclops Mountains (Haffer 2007: 65). It was not until Ernst Mayr collected in the Arfak Mountains and in the Cyclops Mountains in 1928 (Mayr 1930) that it was finally proven that Dumas had collected in the Arfak Mountains: 'J. Dumas made a small collection on the eastern slopes of the Arfak Mountains [16], going up from Oransbari to Mt. Moari (called Mori by Salvadori), which Lord Rothschild and I erroneously believed to be near Humboldt Bay.' (Hartert 1930: 18). [Cape] Oransbari is just east of the coastal locality of Moari [17]. We think that Dumas' label locality actually meant the mountain near Moari, which also would have placed it in the Arfak Mountains.

Of the 68 bird skins purchased, 63 specimens of 40 species are now in AMNH. Rothschild's (1899a) publication of a new species from 'Mt. Moari', said there by him to be near Humboldt Bay, probably caused van Steenis-Kruseman (1950: 145) to list Humboldt Bay (now Yos Sudarso Bay [18]) as an 1899 collecting locality for Dumas. However, van Steenis-Kruseman (1950: 145) also noted that Dumas visited the Cyclops Mountains [19] in 1899, making it possible that some Humboldt Bay specimens were collected by Dumas in 1899 and were included with the Arfak specimens, although we have not been able to otherwise document this. We have found only two new forms described from the Arfak Mountains collection (see Appendix A).

**1900** A collection of birds made by Dumas in '1900' on the Lawas River, Brunei, northern Borneo, is now in the Museum Zoologicum Bogoriense (MZB) (Kloss 1930: 396). Forty-nine specimens listed on the current MZB spreadsheet are dated February 1900, and Dumas could not personally have collected them, as he was at that time on the Mamberamo River (see below). The date may represent when the collection was received or accessioned by the MZB. The collector apparently sexed them. Also, this is the year that Dumas established himself at Metu Débi [18], an island between Jotēfa Bay [18] and Humboldt Bay, to hunt for birds (Wichmann 1910–12: 172, Galis 1955: 14).

**January 1900** On 14 April 1900, Rothschild noted in his 'Purchases' that he bought 46 bird skins from van Renesse van Duivenbode, but the collector was not mentioned. This purchase was of Dumas' specimens from the Mamberamo River [20], known then as

the Ambernoh River (Rothschild & Hartert 1901: 60). These specimens were not labelled or dated, the locality having been provided by van Renesse van Duivenbode, and also probably included specimens from Humboldt Bay. While Rothschild & Hartert (1903: 105–106) felt that Dumas was 'unaware of the importance of localities' and combined specimens from several places, Dumas, due to his long association with Everett, would have certainly been aware of the importance of localities. It is more likely that the confusion was due to van Renesse van Duivenbode, who was sometimes careless or misleading about localities in order to protect his own interests (Swadling 1996: 73–74). Of the 46 specimens purchased, there are 41 now in AMNH labeled 'Ambernoh River'. An additional 27 are labelled 'North Coast' or 'nr. Humboldt Bay'. The locality and date are uncertain, and Rothschild probably purchased additional specimens that are not noted in his 'Purchases'. Four new forms were based on Dumas' specimens from the Mamberamo River or the north coast (see Appendix A).

Dumas' stay on the Mamberamo River was documented by Wichmann (1910–12: 711–712) in an interview with Dumas. On a voyage in the *Camphuys* in January 1900, Dumas was put ashore with 30 Dyak helpers and eventually set up camp near Havik Island, apparently with the notion of establishing a trading post. Following a severe outbreak of beri-beri among the Dyaks, which proved fatal to eight, the party was picked up by the *Camphuys* some 50 days later, where they recovered aboard the ship and went on to Humboldt Bay, later returning to Java. This provided opportunity for specimens to have been collected while the ship was at Humboldt Bay.

We have found no further evidence of purchases of Dumas material by Rothschild. In 1932 the Rothschild Collection of birds was purchased by AMNH, and the Dumas specimens in the Rothschild Collection referred to above are now in New York.

As was frequently the case, collectors sent their entire collections to Rothschild first, and after selecting those specimens he wished to retain, he sent the remainder to dealers, usually Edward Gerrard & Sons in London, to sell for the collector (Rothschild, 1983: 158). Most of the specimens listed by Sharpe (1906: 360–361) as collected by Everett were purchased from Gerrard and are in the bird collection of BMNH, now housed on the former Rothschild estate at Tring, England. Sharpe probably would not have known of Dumas' involvement, as Everett's labels have only his name on them. But Sharpe (1906: 342–343) listed two purchases of Dumas' bird skins in 1899 and 1900 for a total of 94 specimens from northern New Guinea, probably from among those turned over to Gerrard by Rothschild. One new form was named by Ogilvie-Grant (1915: 163, see Appendix A) from among the BMNH purchases. Many other museums also may have purchased earlier Dumas specimens from Gerrard bearing only Everett's name, and other dealers probably became involved. There are a few Dumas specimens in AMNH that were purchased by Leonard C. Sanford from the dealer W. F. H. Rosenberg.

**July–September 1901** In July 1901, L. A. van Oosterzee, Controleur van Noord-Nieuw-Guinea, met Dumas on Metu Débi, where he had a trading post (Wichmann 1910–12: 768–769, Swadling 1996: 213). They made a trip inland with Lieutenant Schultz to Lake Sentani [21] in order to ascertain its size, leaving the lake where it flows into the Djafuri (now Jafuri) River at Puë and continuing on to the Tami River and back to Humboldt Bay. On 12 September 1901, they made a second trip to Lake Sentani (Wichmann 1910–12: 769, Lorentz 1905: 2–3, 63). The steamship on which van Oosterzee returned from Metu Débi eventually reached Ternate on 15 October 1901 (Wichmann 1910–12: 769–770), and it is possible that Dumas returned to Ternate at that time.

**March–May 1902** After returning to Ternate from Humboldt Bay, Dumas went to south-west New Guinea for the New Guinea Trading Company, arriving at Fak Fak [22] in

March 1902 and travelling in the area between Cape Buru (which is probably at the mouth of the Buru River) and the mouth of the Newérip River [23]. During this trip he found that Mount Buru [24] was an isolated mountain and not part of the Charles Louis Mountains and determined that the Utanata River was further west than the location established for it by the *Triton* expedition in 1828. In addition to making observations along the coastline, he got to know the coastal people, trading with them and publishing a Dutch-Mimika wordlist (Dumas 1910). He made first contact with several local groups. Travelling by small boat, Dumas entered the estuaries of many of the small rivers, and found that one could travel this entire distance on interconnecting waterways without having to enter the ocean, with local people assisting him from time to time in the shallow estuaries. Because he was able to communicate with these people, he discovered that they moved inland during the south-east monsoon to escape the stormy weather and the plagues of insects. Dumas spent some time on the islands of Naurio and Puriri at the mouth of the Newérip hunting birds of paradise (van Hille 1905: 318–321, Wichmann 1910–12: 793–794, van Steenis-Kruseman 1950: 145). Van Hille (1905) based his map no. 4 on Dumas' sketch of the area and noted that when Dumas returned to Fak Fak in May 1902 following his explorations, he suffered badly from malaria.

**February–August 1903** The Wichmann Expedition, initiated by the Maatschappij ter bevordering van Natuurkundig Onderzoek der Nederlandsche Kolonien (= Company for the promotion of Biological Research of the Dutch Colonies, and sometimes referred to as the Treub Company), was the first official expedition into Netherlands New Guinea, and its purpose was to map the north coast, explore the area, search for coal, minerals and forest products of commercial value, and make scientific studies. C. E. A. Wichmann (1917) led the expedition and produced a detailed account of it: L. F. de Beaufort was zoologist; H. A. Lorentz, ornithologist (assisted by J. W. van Nouhuys, commander of the steamer *Zeemeeuw* that brought the party to Humboldt Bay); G. J. A. van der Sande, anthropologist and ethnographer; and J. M. Dumas, bird collector. Wichmann (1917: viii) had met Dumas in Ternate and he departed from there with the expedition.

In early 1903, Dumas left from Manokwari [25], on the coast of Geelvink (now Cenderawasih) Bay and went to Humboldt Bay (Wichmann 1917: 96) ahead of the rest of the expedition to make arrangements for an expedition camp at Metu Débi, an island between Humboldt (now Yos Sudarso) Bay and Jotefa Bay, where he already owned a small house from his previous travels (Wichmann 1917: 149). Dumas was on this trip to collect birds (Wichmann 1917: 38), but after Wichmann arrived on 13 March 1903, he also assisted in the movement of men and materials on the numerous inland journeys made to explore the area (Wichmann 1917: 146–252). The fact that he also spoke various local languages and could communicate with the indigenous people (Lorentz 1905: 16, 47) must have added greatly to his value to the expedition. Dumas had brought with him 30 men from northern Borneo (Dyaks) and the bird of paradise hunters Rassip and Maringi, the latter from Ternate. These last two did most of the collecting during the trip; however, due to unrest in Ternate, they left the expedition in June (Lorentz 1905: 3, 199).

A trip inland to Lake Sentani, carrying a boat with them, was accomplished with Dumas' assistance. Many parts of the lake were explored and a list of specimens collected is in Wichmann (1917: 208–210). Wichmann (1917: 187) also listed the plants and animals collected on the Timená River. A route was pioneered to the Cyclops Mountains where collecting was undertaken and a list of plants and animals collected was published (Wichmann 1917: 194). Another trip was made along the coast to the Tami River [26] and on to the village of Oinake, across the border into what was then German New Guinea (now the village of Wutung [27] in Papua New Guinea). Animals collected on the Tami and the

Moso rivers were also listed (Wichmann 1917: 228–230). This must have been a very difficult trip. There are few details concerning the hardships, although Lorentz (1905: 3, 12) noted that several Dyaks contracted beri-beri. Evelyn Cheesman (1941, 1949: 201–217) made this same journey in 1938, and she provided details of this still little-known coastline. In May, Dumas undertook an exploratory trip from Lake Sentani to the Tami River, through the Sekanto River area and a list of animals collected is found in Wichmann (1917: 251). The Jafuri area was also visited. Dumas' knowledge of the area from previous visits was of great assistance on these exploratory journeys and Wichmann (1917: viii) considered himself fortunate to have met Dumas in Ternate and to have had his expertise and experience available. Dumas also took photographs during the expedition (Lorentz, 1905: 150) and there are 131 photographs taken by Dumas between 1903 and 1910 at the KITLV / Royal Netherlands Institute of Southeast Asian and Caribbean Studies, Leiden.

The greater part of the bird collection was made near Humboldt Bay, where the expedition remained four months, and was reported on by de Beaufort (1909). Dumas is not mentioned in his report, but he was undoubtedly helping with the bird collecting. The only mention we have come across is that he collected three Victoria Crowned Pigeons *Goura victoria*, and the next day he went with de Beaufort to collect more birds (Wichmann 1917: 249), but he probably collected on all of the various excursions inland. He also collected some plants after the departure of the plant collectors Atasrip and Djibja from the expedition (van Steenis-Kruseman 1950: 145). Dumas remained with the Wichmann expedition on its return, during which it made stops at some islands off northern New Guinea and in Geelvink, now Cenderawasih Bay [28]. The 408 specimens from this expedition were deposited in RMNH in October 1909.

On the return, the expedition stopped at Manokwari and ended at Ternate in August. We were unable to find where Dumas disembarked or information on his whereabouts between the end of the 1903 expedition and his joining the following expedition.

**April–November 1907** In 1907, Dumas joined the first Netherlands South New Guinea expedition, initiated by the Maatschappij ter bevordering van Natuurkundig Onderzoek der Nederlandsche Kolonien and under the leadership of H. A. Lorentz, who would have known Dumas from the 1903 expedition. G. M. Versteeg was the botanist on this expedition and van Steenis-Kruseman (1950: 542–543) and Lorentz (1913: 2) gave details of the botanical collections and an itinerary. From April to August 1907 they moved up the Noord River, later renamed the Lorentz River and now known as the Unir River [29], going overland to the Hellwig Mountains in September and making a further reconnaissance of the Reiger and Dumas rivers in late September and early October. In November the expedition was at Merauke.

E. D. van Oort (1909) reported on the 480 bird specimens collected, some of which were collected at Merauke [30] between 6 and 25 November, at the end of the expedition. This collection was deposited in RMNH. While Dumas is not mentioned by name in van Oort's publication, he undoubtedly assisted in making the bird collection, and it was probably on this expedition that the Dumas River was named for him.

Van Oort (1910a) reported on part of a collection made near Merauke between June 1907 and March 1908 by the Dutch Exploration Detachment. Twenty-nine specimens of 19 species from this collection were sent to van Oort by J. C. Koningsberger of the Museum Zoologicum Bogoriense (MZB) for identification, one of which was a new record for New Guinea and another was described as a new subspecies. Apparently the remainder of the collection was retained in MZB, where L. F. de Beaufort briefly examined it and reported that it contained two cranes, at that time unreported from New Guinea. It is unclear from van Oort's note whether the specimens he examined were retained in Leiden or returned to

MZB, but the type of the new *Oriolus sagittata magnirostris* is in RMNH (Dekker & Quaisser 2006: 54). The specimens were sexed, but undated. It is not certain that Dumas collected these specimens, but he had returned to Merauke in November 1907 with the first Lorentz expedition and left again in May 1908 to explore the Bloemen River (van Steenis-Kruseman 1950: 145), so it is probable that he did.

In July 1907, the Netherlands New Guinea government had begun a programme of exploration 'the like of which New Guinea had never known before and would never know again. The programme lasted seven years, cost 5,500,000 guilders, and involved approximately 800 men' (Souter 1963: 131–132). The South New Guinea detachment began by exploring the area around Merauke, then moved north-west along the coast, exploring each major river as they came to it. Dumas became a part of this massive government attempt to impose authority and discover possibilities for commercial development.

**May 1908–January 1910** During this time, Dumas was a naturalist attached to the government Exploration Detachment in southern Dutch New Guinea (van Steenis-Kruseman 1950: 145). In May–June 1908, Dumas was on the Bloemen (Blumen) River, now the Jatsy River [31] (between the Hellwig and Kasteel rivers), returning to Merauke on 15 June. From 29 June to 12 July 1908 his detachment went to the Utumbuwe River and back to Merauke. They then made a 12-day reconnaissance between the Byan (now Bian) River and the Merauke River [32], e.g. of the basin of the Kumbe River [33]. In September, Dumas participated in more exploration of the same region until December 1908, when he returned to Merauke. On 18 February–27 March 1909 he explored the basin of the Digul River [34], tracing a path from the Digul to the Fly River and, subsequently, investigating small tributaries of the lower Digul from April to July, under the leadership of L. Weber. It was on this expedition that the snow atop Mount Juliana (now Mount Mendala [35]) was first sighted. The one bird specimen in MZB collected by Dumas on the Digul River is dated July 1909 and is listed both on the MZB spreadsheet and by Hartert (1932: 30). Beginning in mid-November 1909, Dumas' detachment under the leadership of Captain A. B. W. Schaeffer explored the region near and above the Kumbe River, but encountered difficulties and its trip was aborted. Part of this detachment then went to the Eilanden River. Dumas was with another part of the expedition under the leadership of Lieutenant van der Bie that visited Frederik Hendrik (now Yos Sudarso) Island [36] on 19 January 1910 (Anon. 1916: 7, van Steenis-Kruseman 1950: 145). We were unable to find documentation of any other bird specimens collected by Dumas during this period.

**Late 1909–1910** There were at least four expeditions collecting natural history specimens in south-west New Guinea in late 1909–10. Lorentz was at the end of his second expedition, the second Netherlands South New Guinea Expedition, during which his party had entered the Lorentz River on 2 September 1909. Essentially following the path of the first Lorentz expedition, they continued beyond and on 8 November 1909 (Lorentz 1911: 492) reached the snows of Mount Wilhelmina (now Mount Trikora [37]) in the Oranje (now Jayawijaya) Range of the Snow (now Maoke) Mountains. G. M. Versteeg was the zoologist and botanist on this expedition and D. Habbema was the commander of the military detachment attached to it (van Steenis-Kruseman 1950: 209, Souter 1963: 133–135). Dumas was not attached to this expedition, being on the Otakwa River at the time (see below). Van Oort (1910b) described the new forms from this second expedition, and Junge (1937, 1939) reported on all of the birds from the second Lorentz expedition.

Lorentz had been badly injured in a near-fatal fall when descending from the snows of Mount Wilhelmina and spent many days of agonised travel back. On 15 December 1909 they reached Bivouac Island and awaited the arrival of the steamship *Java* (Lorentz 1911:

495), and 'after a short visit to the British expedition on the Mimika river [the *Java*] towed us back to Java and safely landed us there' (Lorentz 1911: 479).

The British expedition Lorentz mentioned was the British Ornithologists' Union Jubilee Expedition to New Guinea under the leadership of Walter Goodfellow, with A. F. R. Wollaston as the zoologist. The Dutch authorities had agreed to allow them to enter the Snow Mountains only after 1 January 1910 so as not to interfere with Lorentz's expedition, and they had decided to explore the Mimika River [38] (Wollaston 1912: 2–3). Wollaston (1912: 169) mentioned the visit to the British camp by Lorentz and his company on their way back to Java, and Meek (1913: 211), Ogilvie-Grant (1915) and Souter (1963: 135–137) provided information on the British expedition as well.

The Exploration Detachment set out on 9 April 1910 for the Otakwa River [39], going on to the Carstensz Mountains (now the Jayawijaya Range) following the left tributary of the Setekwa River, itself a tributary of the Otakwa. This expedition was under the command of Captain J. J. van der Bie, with J. M. Dumas, surveyor and naturalist, three white sergeants and approximately 50 native soldiers and convicts, and 20 Dyaks of north Borneo. The Otakwa expedition of the Dutch was in the field for seven months in an attempt to cross New Guinea via that river. Unfortunately, it led them to some of the highest mountains in New Guinea. Because this route was not feasible, on 5 November 1910 the detachment was withdrawn from the Otakwa and combined with another Dutch expedition already in the field on the Eilanden River, probably that of Captain A. B. W. Schaeffer mentioned earlier, arriving on 2 December 1910 (van Steenis-Kruseman 1950: 145, Wollaston 1912: 210).

With the Otakawa River Exploration Detachment was the Australian Albert S. Meek, two assistants (probably the Eichhorn brothers), and ten men from the Australian part of New Guinea. Meek had been allowed to join the Otakwa expedition and use the government ship that supplied it. He left Merauke on 9 June 1910 to join the expedition and made collections mostly at approximately 610 to 915 m on the Setekwa River, a tributary of the Otakwa, where he set up his camp (Rothschild & Hartert 1913). Meek (1913: 209–213) noted that he would have been unable to work there without the government force nearby, because the local inhabitants were wild, nomadic and given to thievery. Meek undoubtedly met Dumas during this period, but did not mention him by name in his book (Meek 1913). In 'December' 1910, Meek had a 'cordial offer' from the captain commanding the Eilanden River Expedition to join his forces (Meek 1913: 216–217) and he left for the coast on 16 'December' 1910 (probably November, the dates in Meek 1913 are unreliable; latest specimen date from upper Setekwa is 16 November). Meek's collection was made for Lord Walter Rothschild (see Rothschild & Hartert 1913) and the bird specimens are now in AMNH.

Wollaston travelled from the site of the British expedition on the Mimika River to Merauke in November 1910 on the Dutch government supply steamer, *Valk*, which serviced various Dutch expeditions. En route they stopped at the Otakwa River to bring away the Dutch Exploration Detachment that had been on that river. Wollaston (1912: 44) mentioned that Mr Dumas of the Dutch expedition to the Utakwa (= Otakwa) River identified the slate exposed on the face of Mount Carstensz (now Mount Jaya [40]) and that Meek 'had been attached to the Dutch Expedition to make collections of birds and butterflies for a private museum in England.' (Wollaston 1912: 210). All of the people from both parties were taken aboard the *Valk* along with all their gear and live animals! Wollaston (1912: 212) particularly mentioned the three cassowary eggs that Dumas brought aboard and that hatched on the ship, and he was also impressed by the fine physical appearance and industriousness of the Dyaks accompanying the Dutch detachment. Undoubtedly, it was a very heavily loaded ship on its way to the Eilanden River.

**1910–11** The Eilanden (now Pulau [41]) River expedition had already been in the field for some months, searching for a route across New Guinea that would intersect with an upper tributary of the Sepik River, which flowed into the sea in German territory on the north side of New Guinea. This attempt to cross the island was abandoned due to illness (Wollaston 1912: 216–217) and the *Valk* left many of the men from the Otakwa expedition on the Eilanden River, apparently to reorganise exploration. Dumas was among them and took part in exploration of the Eilanden River and 'A' and 'B' rivers, these last two apparently tributaries of the Eilanden. This party returned to Merauke at the end of March 1911 (van Steenis-Kruseman 1950: 145). Using the spreadsheet of Dumas skins from the Eilanden River kindly provided to us by MZB and the Eilanden River specimens collected in 1911 and recorded by Hartert (1932) as being in MZB at that time, we have been able to compile a list of 13 species collected by Dumas and his group in March and early April 1911.

Meek and his party were also left on the Eilanden River. He then went upriver *c.*240 km by steamer to the boat moored there as a supply base for the Dutch expedition. After this he went by launch for two days and then by canoe for four more days to 'Canoe Camp'. Leaving supplies at the 'Canoe Camp' of the Dutch expedition, Meek traveled further inland for four days to set up a mountain camp at approximately 1,980 m on Mount Goliath. At this camp, with food not available from local people and supplies a four-day walk away, Meek's hunters contracted beri-beri and three died. He broke camp and descended to the coast apparently at the same time as the Dutch expedition. He left Dutch New Guinea in March 1911 (Meek 1913: 230; latest specimen date 10 March). These specimens were reported on by Rothschild & Hartert (1913) and are now in AMNH, but do not include any Dumas specimens.

**August 1911** In August 1911, and earlier, Dumas was involved in exploration of the 'A' River, a tributary of the Eilanden River (this may be the river now known as the Brazza) and the area west of it (van Steenis-Kruseman 1950: 145), but we have no information on whether he was routinely collecting. There is, however, a specimen of Collared Sparrowhawk *Accipiter cirrocephalus* reported by both the MZB spreadsheet and by Hartert (1932: 445) as having been collected by Dumas on the Eilanden River on 6 June 1911. This shows that he was on the river prior to August.

Between 1911 (when he was 55 years old) and 1917, a further gap exists in our knowledge of Dumas' activities. During this period, increased restrictions on the collection of birds of paradise for the plume trade and the 1914 liquidation of van Renesse van Duivenbode's company (Wichmann 1917: 387) along with the outbreak of World War I, which must have led to a disruption in exploration of New Guinea by the Dutch government, probably resulted in difficult times for Dumas. Very little is known about Dumas' later life.

**1917** In approximately April–June 1917 when he was 61 years of age, Dumas was in Palembang and Air Rawas, southern Sumatra, collecting plants for K. Heyne (van Steenis-Kruseman 1950: 145). There is one undated Dumas bird specimen in MZB from Tanjungkassau, Sumatra.

Dumas was employed *c.*1917 as a civil servant in the Dept. of Agriculture in Buitenzorg (now Bogor), Java, and settled in that year at Tanahsareal, where he lived for the rest of his life. Apparently, he continued to collect birds occasionally, as there are eight bird specimens in MZB collected in 1923–24 from the vicinity of Bogor. Nothing is known about his first marriage except that his wife was European and that they had one son, Charles Dumas (1920–38). He married a second time, on 18 August 1921, to Philipina Tan Lien Nio (died *c.*1938), of Chinese descent. Dumas died at Bogor at age 74 on 25 March 1931 (Dumas & Dumas 1997).

Not only was Dumas a collector of natural history specimens, but his positions with the various Dutch expeditions and with the Dutch Exploration Detachment included greater responsibilities, based no doubt on his broad experience in the forests of New Guinea and with the local inhabitants. His many journeys into difficult and unexplored areas, and the respect of those who worked with him, as well as his continued employment by the Dutch Exploration Detachment, point to him as an experienced and knowledgeable explorer.

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## Appendix A: types collected by Dumas

The following is a list of new taxa described, the types of which were collected by Dumas. This can only be a very partial list, gleaned from new taxa from high altitudes when Dumas was the assistant to Everett and from new taxa based on Dumas' later collections treated by Rothschild and / or Hartert, Stresemann, Ogilvie-Grant and Vaurie. It is only a glimpse at the importance of the field prowess of Dumas and his men and their contribution to ornithological knowledge at the turn of the 20th century. Nomenclature follows Dickinson (2003).

**Bonthain Peak, Mount Lompobattang, southern Sulawesi**

*Spilospizias trinotatus haesitandus* Hartert, 1896 [now *Accipiter trinotatus* Bonaparte, 1850]
*Chlorocharis squamiceps* Hartert, 1896 [now *Lophozosterops s. squamiceps* (Hartert, 1896)]
*Catapouera turdoides* Hartert, 1896 [now *Catapouera t. turdoides* Hartert, 1896]
*Dendrobiastes hyperythra brunneicauda* Stresemann, 1931 [now *Ficedula hyperythra jugosae* (Riley, 1921)]
*Siphia bonthaina* Hartert, 1896 [now *Ficedula bonthaina* (Hartert, 1896)]

**Mount Repok, southern Flores**

*Pisorhina alfredi* Hartert, 1897 [now *Otus alfredi* (Hartert, 1897)]
*Pachycephala nudigula* Hartert, 1897 [now *Pachycephala n. nudigula* Hartert, 1897]
*Phyllergates everetti* Hartert, 1897 [now *Orthotomus cucullatus everetti* (Hartert, 1897)]
*Acanthopneuste floris* Hartert, 1898 [now *Phylloscopus presbytes floris* (Hartert, 1898)]
*Cryptolopha montis floris* Hartert, 1897 [now *Seicercus montis floris* (Hartert, 1897)]
*Pnoepyga everetti* Rothschild, 1897 [now *Pnoepyga pusilla everetti* Rothschild, 1897]
*Zosterops superciliaris* Hartert, 1897 [now *Lophozosterops s. superciliaris* (Hartert, 1897)]
*Lophozosterops subcristatus* Hartert, 1897 [now *Lophozosterops dohertyi subcristatus* Hartert, 1897]
*Zosterops crassirostris* Hartert, 1897 [now *Heleia crassirostris* (Hartert, 1897)]
*Brachypteryx floris* Hartert, 1897 [now *Brachypteryx montana floris* Hartert, 1897]
*Microeca oscillans* Hartert, 1897 [now *Rhinomyias o. oscillans* (Hartert, 1897)]

**Buru Island, Moluccas**

*Megapodius duperryi buruensis* Stresemann, 1914 [now *Megapodius forsteenii buruensis* Stresemann, 1914]
*Reinwardtoena reinwardtii albida* Hartert, 1900 [now *Reinwardtoena r. reinwardtii* (Temminck, 1824)]
*Columba wiedi* Hartert, 1899 [now *Gymnophaps m. wiedi* (Hartert, 1899)]
*Prioniturus wiedi* Hartert, 1900 [now *Prioniturus wiedi* Hartert, 1900]
*Strix cayelii* Hartert, 1900 [now *Tyto sororcula cayelii* (Hartert, 1900)]
*Pachycephala melanura buruensis* Hartert, 1899 [now *Pachycephala macrorhyncha buruensis* Hartert, 1899]
*Rhipidura superflua* Hartert, 1899 [now *Rhipidura superflua* Hartert, 1899]
*Myiagra galeata buruensis* Hartert, 1903 [now *Myiagra galeata buruensis* Hartert, 1903]
*Phyllergates everetti dumasi* Hartert, 1899 [now *Orthotomus cucullatus dumasi* (Hartert, 1899)]
*Androphilus disturbans* Hartert, 1900 [now *Bradypterus castaneus disturbans* (Hartert, 1900)]
*Acanthopneuste buruensis* Hartert, 1899 [now *Phylloscopus poliocephalus everetti* (Hartert, 1899)]
*Geocichla dumasi* Rothschild, 1899 [now *Zoothera dumasi* (Rothschild, 1899)]; *cf.* Fig. 5
*Microeca addita* Hartert, 1900 [now *Rhinomyias additus* (Hartert, 1900)]
*Erythromyias buruensis* Hartert, 1899 [now *Ficedula b. buruensis* (Hartert, 1899)]
*Ciinyris zenobia buruensis* Hartert, 1910 [now *Ciinyris jugularis buruensis* Hartert, 1910]

**Morotai Island**

*Accipiter fasciatus mortyi* Hartert, 1925 [now *Accipiter novaehollandiae mortyi* Hartert, 1925]
*Myzomela simplex mortyana* Hartert, 1903 [now *Myzomela obscura mortyana* Hartert, 1903]
*Dicrurus hottentottus morotensis* Vaurie, 1946 [now *Dicrurus bracteatus morotensis* Vaurie, 1946]

**Mount Moari, Vogelkop, west New Guinea**

*Crateroscelis rufobrunnea* Rothschild & Hartert, 1900 [now *Crateroscelis m. murina* (P. L. Sclater, 1858)]
*Mellopitta gigantea* Rothschild, 1899 [now *Melampitta gigantea* (Rothschild, 1899)]; *cf.* Fig. 4

**Mamberamo River and north coast of west New Guinea**

*Nasiterna salvadorii* Rothschild & Hartert, 1901 [now *Micropsitta pusio beccarii* (Salvadori, 1876)]
*Edolisoma meyeri sharpei* Rothschild & Hartert, 1903 [now *Coracina incerta* (Meyer, 1874)]
*Poecilodryas brachyura dumasi* Ogilvie-Grant, 1915 [now *Poecilodryas brachyura dumasi* Ogilvie-Grant, 1915]

*Dicaeum geelvinkianum diversum* Rothschild & Hartert, 1903 [now *Dicaeum geelvinkianum diversum* Rothschild & Hartert, 1903]

## Appendix B: gazetteer

Coordinates are in degrees and minutes. Numbers in brackets refer to localities shown on the map (Fig. 1).

| | |
|---|---|
| Air Rawas | 02°42′S, 103°24′E |
| Alor Island [11] | 08°15′S, 124°45′E |
| Ambernoh River, see Mamberamo River | |
| Arfak Mountains [16] | 01°05′S, 133°58′E |
| Atapupu [13] | 09°00′S, 124°51′E |
| Bagelen | 07°49′S, 110°01′E |
| Bara | 03°08′S, 126°11′E |
| Barat River | 05°23′S, 137°52′E |
| Batavia, see Jakarta | |
| Bian River | 08°07′S, 139°56′E |
| Bloemen River, see Jatsy River | |
| Bogor | 06°35′S, 106°47′E |
| Bonthain Peak, see Mount Lompobatang | |
| Brazza River | 05°21′S, 139°24′E |
| Buitenzorg, see Bogor | |
| Buru Island | 03°24′S, 126°40′E |
| Buru River | 04°18′S, 134°56′E |
| Cape Oransbari | 01°21′S, 134°15′E |
| Cenderawasih Bay [28] | 02°30′S, 135°20′E |
| Cyclops Mountains [19] | 02°32′S, 140°36′E |
| Digul River [34] | 07°05′S, 138°42′E |
| Dumas River | 05°00′S, 138°42′E |
| Eilanden River, see Pulau River | |
| Ende Island | 08°53′S, 121°32′E |
| Fak Fak [22] | 02°55′S, 132°18′E |
| Frederik Hendrik Island, see Yos Sudarso Island | |
| Geelvink Bay, see Cenderawasih Bay | |
| Havik Island | 02°20′S, 138°00′E |
| Hellwig River, see Barat River | |
| Humboldt Bay, see Yos Sudarso Bay | |
| Indrulaman | *c.*05°30′S, 120°05′E |
| Jafuri River | 02°46′S, 140°44′E |
| Jakarta | 06°10′S, 106°48′E |
| Jampea, see Tanahjampea | |
| Jatsy River [31] | 05°17′S, 137°45′E |
| Jayawijaya Range | 04°30′S, 139°30′E |
| Jotēfa Bay [18] | *c.*02°38′S, 140°44′E |
| Kalao Island [4] | 07°18′S, 120°58′E |
| Kasteel River, see West Kasteel River | |
| Kayeli | 03°23′S, 127°06′E |
| Kumbe River [33] | 08°21′S, 140°14′E |
| Labuan Island | 05°19′N, 115°13′E |
| Lake Sentani [21] | 02°36′S, 140°34′E |
| Lawas River | 04°58′N, 115°25′E |
| Lingga Islands | 00°00, 104°35′E |
| Lomblen Island [12] | 08°25′S, 123°30′E |
| Lombok Island [5] | 08°45′S, 116°30′E |
| Lorentz River, see Unir River | |
| Mamberamo River [20] | 01°26′S, 137°53′E |

| | |
|---|---|
| Manggarai District | 08°30′S, 120°15′E |
| Manokwari [25] | 00°52′S, 134°05′E |
| Merauke River [32] | 08°30′S, 140°24′E |
| Merauke [30] | 08°28′S, 140°20′E |
| Metu Débi [18] | *c*.02°37′S, 140°42′E |
| Mimika River [38] | 04°42′S, 136°27′E |
| Moari [17] | 01°21′S, 134°15′E |
| Morotai Island [15] | 02°20N, 128°40′E |
| Moso River | 02°38′S, 140°56′E |
| Mount Buru [24] | 04°14′S, 134°57′E |
| Mount Carstenz, see Mount Jaya | |
| Mount Goliath | 04°40′S, 139°52′E |
| Mount Jaya [40] | 04°05′S, 137°11′E |
| Mount Juliana, see Mount Mandala | |
| Mount Kapalatmada [14] | 03°15′S, 126°09′E |
| Mount Lompobatang [1] | 05°20′S, 119°55′E |
| Mount Mandala [35] | 04°44′S, 140°20′E |
| Mount Repok [8] | 08°45′S, 120°21′E |
| Mount Rinjani [5] | 08°24′S, 116°28′E |
| Mount Trikora [37] | 04°15′S, 138°45′E |
| Mount Wilhelmina, see Mount Trikora | |
| Nanga Ramut [7] | *c*.08°49′S, 120°23′E |
| Newérip River [23] | 04°52′S, 136°58′E |
| Noord River, see Unir River | |
| Oinake, see Wutung | |
| Oranje Range, see Jayawijaya Range | |
| Otakwa River [39] | 04°59′S, 137°13′E |
| Palembang | 02°55′S, 104°45′E |
| Pantar Island [10] | 08°25′S, 124°07′E |
| Puë | 02°42′S, 140°35′E |
| Pulau River [41] | 05°50′S, 138°15′E |
| Puriri Island | 04°55′S, 136°53′E |
| Reiger River | 04°52′S, 138°47′E |
| Sawu Island [6] | 10°30′S, 121°54′E |
| Sekanto River | 02°45′S, 140°48′E |
| Selayar Island [2] | 06°05′S, 120°30′E |
| Setekwa River | 04°54′S, 137°19′E |
| Sumba Island [9] | 10°00′S, 120°00′E |
| Tami River [26] | 02°37′S, 140°55′E |
| Tanahsareal | 06°09′S, 106°48′E |
| Tanahjampea Island [3] | 07°05′S, 120°42′E |
| Tanjungkassau | 03°18′N, 99°17′E |
| Tasoso | *c*.05°20′S, 119°55′E |
| Unir River [29] | 05°23′S, 138°04′E |
| Utumbuwe River | 05°30′S, 138°05′E |
| West Kasteel River | 05°14′S, 137°40′E |
| Wutung [27] | 02°35′S, 141°02′E |
| Yos Sudarso Bay [18] | 02°35′S, 140°45′E |
| Yos Sudarso Island [36] | 07°50′S, 138°30′E |

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# Deuterium analysis reveals potential origin of the Fair Isle Citril Finch *Carduelis citrinella*

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Citril Finch *Carduelis citrinella*, one of Europe's few endemic birds, is restricted to the continent's central and south-west mountains (Cramp & Perrins 1994). Eighty per cent of the population is in Spain (Baccetti & Märki 1997), where it inhabits higher mountains from the Pyrenees in the north over the Sistema Iberico in the centre to the Sierra Nevada in the south. Elsewhere, Citril Finch occurs in the French Pyrenees, the Alps, the Black Forest, the Vosges, the Jura, Mont Ventoux and the Massif Central / Cevennes (Cramp & Perrins 1994). Generally, it is rarely recorded far from its preferred habitat of semi-open montane coniferous forests, especially those dominated by *Pinus* ssp. (Förschler & Kalko 2006). Records of vagrants were summarised in Hyndman (2008). Most of the accepted records are from areas close to the species' usual range and vagrancy potential must be considered quite low, making it unsurprising that Citril Finch has never been recorded in Britain before.

However, on 6 June 2008 a Citril Finch arrived on Fair Isle, Shetland, and was well documented with many photographs and video (Hyndman 2008). It remained there until 11 June. The bird was trapped and aged as an adult, based on Svensson (1992). All of the greater wing-coverts were of the same age, fresh and green-fringed. Furthermore, the rectrices were broad, rounded and fairly fresh, being more typical of older birds than first-years. However it is known that some individuals have a complete post-juvenile moult and would then resemble an adult, so the ageing of this individual cannot be absolutely certain. Further details were presented in Hyndman (2008). The record was recently accepted as involving a wild bird by the British Birds Rarities Committee (Hudson *et al.* 2010), and was placed in category A of the British list by the British Ornithologists' Union Records Committee (BOURC 2011), who argued that the bird was wild because the species is rarely kept in captivity and the individual showed no signs of captivity. A comparable case was previously recorded in Finland, where an adult female was trapped with Siskins *Carduelis spinus* in spring 1995 (Lindholm 1995). One of the Siskins had been trapped in Italy before and the Citril Finch perhaps joined a flock of Siskins there, en route to Finland. Nevertheless, this record was placed in category D by the Finnish rarities committee, due to the lack of similar records elsewhere (Hyndman 2008).

To acquire some idea of the possible geographical origin of the Fair Isle bird, we examined the deuterium values of several breast feathers shed during ringing. Using the hydrogen isotope tracer method proposed by Bowen *et al.* (2005), we obtained a value of $\delta$ D = -92.43, which is equivalent to a deuterium value in the precipitation of $\delta$ Dprec = -66.5 (Bowen *et al.* 2005). Citril Finches moult on the breeding grounds. Therefore, we used the Online Isotopes in Precipitation Calculator (Bowen & Revenaugh 2003, OIPC 2009) to compare this value with possible regions of provenance. We derived deuterium precipitation values for 100 sites across the species' entire breeding range and ordered them into six groups: (1) low mountains of the Sistema Iberico, Sistema Central, Cordillera Cantabrica ($n$=17), (2) high mountains of the Western, Central and Eastern Pyrenees ($n$=22), (3) low mountains of the Massif Central and Cevennes ($n$=13), (4) low mountains of the Black Forest, Vosges and Jura ($n$=12), (5) high mountains of the Western and Mediterranean Alps ($n$=10), and (6) high mountains of the Central and Eastern Alps ($n$=25). The Fair Isle feather was assigned a probability of origin for each of the six breeding regions based on a

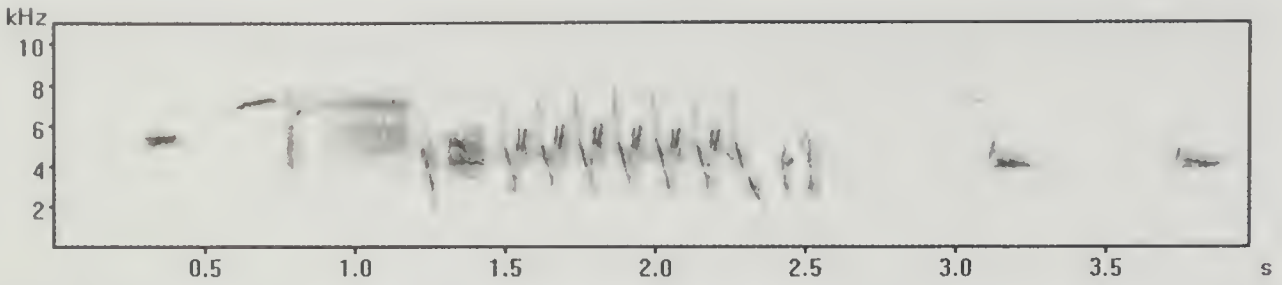


Figure 1. Song and two alarm calls of the Fair Isle Citril Finch *Carduelis citrinella* taken from a video by Liz Musser (http://vids.myspace.com/index.cfm?fuseaction=vids.individual&VideoID=35897570).

likelihood function (Wunder & Norris 2008). The assignment tests revealed high confidence values. Of the 100 times repeated samples, 48% had probability values of originating from the breeding region greater than 0.6, and 90% had probability values greater than 0.5. With a probability of 93%, the Fair Isle bird's origin might be area 4 (Black Forest, Vosges and Jura). Only 7% assigned it to area 6. Consequently, we may exclude that the bird originated from the southern Spanish mountains, the higher Pyrenees, the Massif Central / Cevennes and the Western Alps.

Analysis of the vocalisations of the Fair Isle bird revealed no clear pattern, because the number of available recordings was too small. However, the short length of the song and the compact trill at the beginning (Fig. 1) also favour a bird from more northerly breeding sites. Indeed, very similar song structures can be found in the Black Forest population (compare sonograms in Förschler & Kalko 2007).

That northern populations (areas 4–6) exhibit considerably stronger migratory behaviour (Zink & Bairlein 1995) than southern populations additionally supports a northern origin for the Fair Isle bird. Furthermore, the populations of area 4 are, with a min. distance of 1,350 km, closer to Fair Isle than any other Citril Finch population. However, in recent decades the species' populations in area 4 have declined dramatically (Förschler & Dorka 2010) which should diminish their vagrancy potential. Alternatively, the occurrence of an (apparent) adult in Scotland during the breeding season could even represent a sign of progressive population disintegration.

In summary, our data indicate that the most likely area of origin of the Fair Isle Citril Finch was the low mountains of the Black Forest, Vosges and Jura, in the north of the species' range. Together with the immaculate plumage observed in the hand, the data presented here argue in favour of it being a wild bird, as proposed by the BBRC (Hudson *et al.* 2010) and BOURC (BOURC 2011). However, given that the longest migratory distance recorded for Citril Finch is just 615 km (Cramp & Perrins 1994), it cannot be completely excluded that the bird was caught in the wild and then illegally transported further north.

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# Notes on the nests of five species in south-eastern Ecuador, including the first breeding data for Black-and-white Tody-Tyrant *Poecilotriccus capitalis*

*by Guy M. Kirwan*

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Knowledge of the breeding ecology and seasons of Ecuadorian avifauna has increased exponentially during the last decade, based almost entirely on the work of the Yanayacu Natural History Research Group. Despite this increase in our understanding, many gaps remain, some of which are even possible for the casual observer to fill through wholly opportunistic observations. Here I describe breeding observations of five bird species, all in the province of Zamora-Chinchipe, south-east Ecuador, made during the course of other field work. For one species, Black-and-white Tody-Tyrant *Poecilotriccus capitalis*, the information presented here appears to represent the first breeding data for this poorly known bird. All measurements are estimates, unless otherwise stated.

**STRIPED TREEHUNTER** *Thripadectes holostictus*

A generally uncommon and somewhat patchily distributed Andean bird, from south-west Venezuela to north-west Bolivia (Ridgely & Tudor 2009), the first description of its nest and detailed breeding data were provided only very recently (Zyskowski & Greeney 2010). Together with J. Price, I discovered a nest of this species in a hole within a south-facing earth bank, overhung and sheltered by rootlets, along the Quebrada Honda trail in Tapichalapa Biological Reserve (04°30'S, 79°10'W), on 28 September 2010. Remarkably, the first nest of this species to be described in the literature was found in a very similar situation on the same trail, in November 2006 (Zyskowski & Greeney 2010). Precise measurements of the hole were not taken but were clearly similar to those reported by Zyskowski & Greeney

(2010); however, the burrow we found was just *c.*1 m above ground level. An adult flushed from the nest as we walked the trail, whereupon we stationed ourselves *c.*10 m away and waited for the bird to return in order to confirm identification. This it did after *c.*10 minutes, albeit very cautiously, keeping low down in cover and moving slowly towards the nest until it was directly opposite on the other side of the trail, then flying swiftly into the hole. I had no further opportunity to conduct observations at this nest, and I am unaware of its contents.

**LINED ANTSHRIKE** *Thamnophilus tenuepunctatus*

A relatively recently used but empty nest was seen at Copalinga Ecolodge, between Zamora and Podocarpus National Park, on 1 October 2010; the user's identity was confirmed by C. Witts (pers. comm.). The nest of this species has only been described once previously (Greeney & Gelis 2007). That at Copalinga was very similar to the previous description, including the 'tail' of hanging moss, but differed in being much lower above the ground, just *c.*1 m and was placed in the outer layer of a narrow ornamental hedge close to the lodge's restaurant, which meant that people must have passed the nest several times per day. Greeney & Gelis' nest (in north-east Ecuador) had eggs in late March; that discussed here obviously more closely accorded with the general breeding periods for birds in the south-east of the same country (Greeney *et al.* 2010).

**BLACK-AND-WHITE TODY-TYRANT** *Poecilotriccus capitalis*

Found across western Amazonia and adjacent foothills, from south-east Colombia south to eastern Peru, disjunctly as far as dpto. Pasco, and in south-west Brazil at two localities in Rondônia, as well as much more locally and sparsely across east Amazonian Brazil, at single localities in northern Mato Grosso and south-east Pará (Sick 1997, Zimmer *et al.* 1997, Walther 2004, Schulenberg *et al.* 2007). Its published altitudinal range reaches 1,350 m (Walther 2004, Ridgely & Tudor 2009), although the species is known to 1,500 m at Wild Sumaco lodge, dpto. Napo, Ecuador (pers. obs.). The nest of *P. capitalis* is apparently undescribed (Walther 2004; H. F. Greeney pers. comm.). On 4 October 2010, very close to Cabañas Yankuam (04°14'54.03'S, 78°39'34.04'W), in the Cordillera del Condor near the border with Peru, together with J. Price and S. Smith, I found a nest of this species under construction. I discovered the nest when I heard this species' distinctive vocalisation and shortly afterwards observed both members of a pair in the understorey a few metres distant. After a few minutes, the male (this species is strongly sexually dimorphic in plumage) was observed to visit the previously unseen nest, which was sited *c.*1.3 m above ground in an unidentified 2.5 m tall understorey tree. The general environs of the nest consisted of an old treefall gap measuring *c.*10 m by 8 m, within old second growth with a canopy height of *c.*25 m, and *c.*8 m from a stream. Immediately surrounding the nest tree was a dense understorey with many fallen logs and large, exposed rocks. Dimensions of the nest (see Fig. 1) were calculated using dial callipers and measured 143 mm top to bottom with a 'tail' of vegetation extending an additional 120 mm below the main structure, and at its widest point the nest measured 133 mm side to side. What was obviously the egg chamber was sited in the upper half of the nest and measured 47.5 mm high by 55.0 mm wide externally. The nest was suspended from a very narrow branch, being sited approximately halfway between the tree's main trunk and the branch's tip. It conformed to the type closed / ovoid / pensile, under the system proposed by Simon & Pacheco (2005) for describing nests of Neotropical birds. Constituent materials included fine strips of bark, dark rootlets, living and dead leaf parts, and rhizomorphs. Between 14.00 h and 15.00 of the same day, no further activity was observed at the nest and the birds were silent.

Figure 1. Nest of Black-and-white Tody-Tyrant *Poecilotriccus capitalis*, Cabañas Yankuam, prov. Zamora-Chinchipe, Ecuador, 4 October 2010 (Guy M. Kirwan)

Figure 2. Nest hole of White-thighed Swallow *Neochelidon tibialis*, Podocarpus National Park, prov. Zamora-Chinchipe, Ecuador, 1 October 2010 (Guy M. Kirwan)

Figure 3. Nest of Green-and-gold Tanager *Tangara schrankii*, with two nestlings, Copalinga Ecolodge, prov. Zamora-Chinchipe, Ecuador, 1 October 2010 (Guy M. Kirwan)

Figure 4. Chicks of Green-and-gold Tanager *Tangara schrankii*, Copalinga Ecolodge, prov. Zamora-Chinchipe, Ecuador, 1 October 2010 (Guy M. Kirwan)

According to Walther (2004), the only species of *Poecilotriccus* for which breeding data were previously available is Ochre-faced Tody-Flycatcher *P. plumbeiceps*, whose nest (described from Argentina: de la Peña 1989) was broadly similar in being taller than wide, with a 'tail' of vegetation dangling below it, and a more rotund egg chamber, as well as in being suspended from a thin branch.

**WHITE-THIGHED SWALLOW** *Neochelidon tibialis*

Rather local from eastern Panama, Colombia, southern Venezuela and the Guianas south to northern Bolivia, as well as even more sparsely across Amazonia and in the Brazilian Atlantic Forest (Ridgely & Tudor 2009). Turner (2004) mentioned that the species' breeding biology is very poorly known, although the season appears to be January to May in Colombia and Ecuador (*cf.* Hilty & Brown 1986, Cisneros-Heredia 2006), and February to September in Panama (*cf.* Wetmore *et al.* 1984), while Kirwan (2009) described finding an active nest in south-east Brazil in late February. I found a nest (Fig. 2) attended by both adults along the trail into Podocarpus National Park along the río Bombuscaro. The nest was observed for a total of *c.*25 minutes, on 30 September and 1 October 2010; the adults typically remained inside for 1–2 minutes, sometimes less, and one or other would visit every 30 seconds to five minutes, always arriving and departing very rapidly. The nest itself was located in a one-metre-tall bank beside the trail, *c.*75 cm above the ground, accessed via a rather large near-circular hole, which became a tunnel, *c.*12 cm wide, and at least 1 m long, which dipped slightly at the end (Fig. 2). The nest chamber itself was not visible. This is the first nest to be found in Ecuador. That the species should also breed in the latter part of the year in this part of the country is unsurprising, given that Greeney *et al.* (2010) assembled breeding data for many birds in this region of Ecuador from the period August–December. Other nests have also been in holes in banks, sometimes along rivers, as well as in old woodpecker holes (Wetmore *et al.* 1984).

**GREEN-AND-GOLD TANAGER** *Tangara schrankii*

Nominate *T. s. schrankii* ranges across western Amazonia from south-east Colombia south to northern Bolivia and east to northern Mato Grosso, Brazil (Ridgely & Tudor 2009). Previously published breeding data for this species concern three nests, all found in eastern Peru, in late July (eggs about to hatch), early August (eggs) and the second week of October (under construction), the first of which was 75 cm above ground, the second 2 m above ground in a small palm tree, and the last 1 m above ground (Marra 1990, Isler & Isler 1999). C. Witts showed me a nest wherein the young had just hatched (probably the previous day), placed *c.*1.7 m above the ground at the edge of a small, open-air orchidarium and >2 m from the restaurant at Copalinga Ecolodge, between Zamora and Podocarpus National Park, on 29 September 2010 (Fig. 3). The nest was constructed in an unidentified tree *c.*6 m tall and placed within (i.e. wholly supported by) a large, live bromeliad attached to the main trunk. Many dead leaves (and some tiny living pieces), some green ferns, tiny particles of moss, and some small sticks formed the outside of the nest; however, the nest was finely lined with blackish and dark red fungal rootlets. The nest was well shaded by leaves from above. From a few metres distance, while brooding the chicks, the adult was only just visible above the nest's rim. The chicks were almost naked, with some fine dark grey down, principally on the head and sides of the back (Fig. 4). On 1 October 2010, during a period when the adult was away from the nest foraging, the nest was measured using dial callipers: outside the cup was 120 mm by 97.5 mm at its widest, and 39.5 mm deep, while the egg cup was 39.4 mm by 42.5 mm, and 29.5 mm deep. Only one adult was ever observed in the vicinity of the nest and feeding visits appeared to be irregular, based on my sporadic observations over a three-day period. The only food proffered to the chicks appeared to be dark fruit pulp, despite that the adult was regularly observed at the lodge's banana feeders. Following each observed feed, the adult always brooded the chicks for at least ten minutes. Both chicks fledged on 13 October 2010 and next day they were being fed by an adult at the lodge's feeders (C. Witts *in litt.* 2010). It is worth remarking that C. Witts showed me an old nest

of Green-and-gold Tanager, from the previous season, constructed just <10 cm above the ground in a planted hedgerow near one of the visitor's cabins.

The timing of the Ecuador nest corresponds well with the previously available data from Peru. Although Isler & Isler (1999) commented that the majority of *Tangara* construct principally moss nests, Marra (1990) already demonstrated that this is not the case for *T. schrankii* and Gonzaga & Castiglioni (2006) questioned whether it was really true for some other species too, among them Brassy-breasted Tanager *T. desmaresti*. Nonetheless, the preponderance of dead or dried material used in the nests of *T. schrankii* reported to date, along with similar materials in nests of Lesser Antillean Tanager *T. cucullata* (Isler & Isler 1999), does seem unusual. Wood *et al.* (1992), for instance, reported that a Paradise Tanager *T. chilensis* nest in south-east Peru was principally, but not exclusively, constructed of green moss. The use of fungal rhizomorphs as a lining material in *Tangara* nests was already reported by Sick (1957) and confirmed by Gonzaga & Castiglioni (2006). Unlike the observations reported by Gelis *et al.* (2006) at a nest of Golden Tanager *Tangara arthus*, visits to feed the young were made by a single, silent adult, but the fledging period of *c.*2 weeks is similar in both species.

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# Taxonomic notes on some Muscicapidae

*by Dario Zuccon*

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## The valid name of Slaty-backed Flycatcher

Pygmy Blue Flycatcher *Muscicapella hodgsoni* (Moore, 1854) is a tiny Oriental flycatcher. Two independent studies, using in part different molecular markers, demonstrated that this species is not related to the other blue flycatchers (*Cyornis* and *Niltava*), but instead belongs to a clade including the majority of the *Ficedula* flycatchers and should be known as *Ficedula hodgsoni* (Outlaw & Voelker 2006, Zuccon & Ericson 2010).

With the transfer of *Muscicapella hodgsoni* to *Ficedula* the name *Ficedula hodgsonii* (J. Verreaux, 1871), in use for Slaty-backed Flycatcher, becomes preoccupied. Outlaw & Voelker (2006) suggested that the valid name for Slaty-backed Flycatcher should be *Ficedula erithacus* (Jerdon & Blyth, 1861). This does not appear to be correct.

Slaty-backed Flycatcher was originally described as *Siphia erithacus* Jerdon & Blyth, 1861, from a specimen collected in Sikkim (Jerdon 1862; holotype in the Natural History Museum [BMNH], Tring, examined: BMNH 1886.4.1.1913). This name is preoccupied by *Siphia erythaca* Jerdon, 1847, currently a subjective junior synonym of Mugimaki Flycatcher *Ficedula mugimaki* (Temminck, 1836). The names *erithacus* and *erythaca* differ only in the use of *i* or *y* and according to Art. 58.2 of the *International code of zoological nomenclature* (hereafter the Code, ICZN 1999) they are deemed variant spellings. The two names are thus primary homonyms (Art. 53.3.1) and *Siphia erithacus* Jerdon & Blyth, 1861, is invalid.

The next available name is *Siphia hodgsonii* J. Verreaux, 1871, described from a single male collected at Moupin (= Baoxing County, Sichuan) by A. David (Verreaux, 1872; holotype in the Muséum National d'Histoire Naturelle [MNHN], Paris, examined: MNHN CG. 1870-665).

During an expedition to the Naga Hills, Godwin-Austen (1874) collected four specimens of Slaty-backed Flycatcher at Japvo Peak, Nagaland. The single male was identified as *Siphia erithaca* but the three females were presumed to belong to an unknown form and they were described as a distinct species, *Erythrosterna sordida* Godwin-Austen, 1874 (syntypes in BMNH examined: BMNH 1895.7.14.395, 1895.7.14.396, 1895.7.14.397).

Oates (1883, 1890) was the first to apply the trivial name *hodgsonii* as the valid name to the Slaty-backed Flycatcher, recognising that *Siphia erithacus* Jerdon & Blyth, 1861, was invalid due to primary homonymy and that *Erythrosterna sordida* Godwin-Austen, 1874, was a junior synonym. The same treatment was followed by Sharpe (1903).

Given that *Siphia hodgsonii* J. Verreaux, 1871, is preoccupied, the next available name is *Erythrosterna sordida* Godwin-Austen, 1874, and the valid name for Slaty-backed Flycatcher becomes *Ficedula sordida* (Godwin-Austen, 1874).

## The valid subfamily name of the African forest robins assemblage

The African forest robins are a group of mostly forest-dwelling chats dominated by the African genera *Cossypha*, *Sheppardia*, *Stiphrornis* and *Pseudalethe*, but including also the Palearctic *Erithacus rubecula* (Beresford 2003, Sangster *et al.* 2010, Zuccon & Ericson 2010). According to the results of two recent studies (Sangster *et al.* 2010, Zuccon & Ericson 2010), the group forms a well-supported monophyletic clade.

Sangster *et al.* (2010) suggested that this clade deserves formal recognition as a distinct subfamily. They proposed to resurrect the name Erithacinae G. R. Gray, 1846 (justified emendation of the original spelling subfamily Erythacinae, p. 177, in agreement with Art. 32.5.3: the type genus *Erythacus* 'Cuv.' G. R. Gray, 1846 is an unjustified emendation of *Erithacus* Cuvier, 1800), but their choice does not appear to be correct. The name Cossyphinae Vigors, 1825 (original spelling subfamily Cossyphina, p. 395, type genus *Cossypha* Vigors, 1825) predates the name Erithacinae. Cossyphinae is available and would be the valid name if the clade warrants a formal family-group name.

## The valid generic name of some African forest robins

The genus *Cossypha* is polyphyletic (Beresford 2003, Sangster *et al.* 2010, Voelker *et al.* 2010). Investigating the phylogenetic relationships in a subgroup of African forest robins, Voelker *et al.* (2010) identified a well-supported clade including three species of forest robins, Cape Robin-Chat *Cossypha caffra*, Archer's Ground Robin *C. archeri* and Olive-flanked Ground Robin *C. anomala*. These three species are sister to the genus *Sheppardia* and removed from the other species usually included in *Cossypha*. Voelker *et al.* (2010) suggested that the clade deserves recognition as a distinct genus and proposed resurrecting the genus *Callene*, affirming that '*Callene* was used for the original description of *anomala*'. This choice does not appear to be correct.

The genus name *Callene* Blyth, 1847, was proposed as a replacement name for *Cinclidium* Blyth, 1842, on grounds of the use of *Cinclidium* Swartz *in* Schrader, 1803, in botany. The replacement was unnecessary because zoological nomenclature is independent from other systems of nomenclature (Art. 1.4) and the genus *Cinclidium* remains valid. Notwithstanding any subsequent use, *Callene* Blyth, 1847, is an objective junior synonym of *Cinclidium* Blyth, 1842, and has the same type species as the latter: *Cinclidium frontale* Blyth, 1842 (Art. 67.8). Therefore *Callene* is not applicable to the three *Cossypha* species.

Current understanding of the relationships within the African forest robins is far from satisfactory and at the present stage any taxonomic change is unwarranted. All phylogenetic analyses of this group to date have suffered from incomplete taxon sampling and the results are surprisingly highly incongruent (Roy *et al.* 2001, Beresford 2003, Beresford *et al.* 2004, Sangster *et al.* 2010, Voelker *et al.* 2010, Zuccon & Ericson 2010). On the basis of the results presented by Voelker *et al.* (2010), the merging of the three *Cossypha* species in *Sheppardia* would be equally plausible. But, should the three *Cossypha* species be found to deserve separate generic status, the valid name is *Caffrornis* Roberts, 1922 (type species *Motacilla caffra* Linnaeus, 1771). *Caffrornis* is masculine and the correct combinations would be *Caffrornis caffer*, *C. archeri* and *C. anomalus*.

## The name of the *Cyornis–Niltava* group

The Old World flycatchers belonging to the subfamily Muscicapinae *sensu* Dickinson (2003) are polyphyletic, forming three distinct clades nested within the chats, subfamily Saxicolinae (Sangster *et al.* 2010, Zuccon & Ericson 2010). One of these clades comprises the majority of the south-east Asian flycatchers, including the genera *Cyanoptila, Cyornis, Ennyias, Niltava* and some species of *Ficedula* and *Rhinomyias*.

Sangster *et al.* (2010) proposed to recognise this clade as a separate subfamily. No names appear to be available, and they erected the new name 'Niltavinae' for the *Cyornis–Niltava* group. However, the description of the new subfamily does not meet the requirement of the Code and the new subfamily name is not available. The Code requires that all family-group names proposed after 1999 must fulfill three requirements to be available: (1) the new name must include a statement that it is intended as new, such as 'fam. nov.' or equivalent (Art. 16.1); (2) the type genus must be designated explicitly (Art. 16.2); and (3) the name must 'be accompanied by a description or definition that states in words characters that are purported to differentiate the taxon, or be accompanied by a bibliographic reference to such a published statement, ... or be proposed expressly as a new replacement name (*nomen novum*) for an available name ...' (Art. 13.1).

Although Sangster *et al.* (2010) fulfilled the first two requirements, they failed to provide a diagnosis in the formal description of the new subfamily (p. 386). In the general discussion of the *Cyornis–Niltava* group Sangster *et al.* merely stated that 'in these genera, except *F. monilger* and *Rhinomyias*, males of most or all species (*Niltava, Cyornis, Cyanoptila*) or both sexes (*Ennyias*) have blue upperparts' (p. 387). Although the sentence might be mistaken for a valid diagnosis, it does not qualify as such. In fact the Code explicitly requires that the diagnostic characters must *differentiate* the new taxon from other groups. The blue upperparts are not shared by all members of the *Niltava–Cyornis* group, and this character is not diagnostic of some of them to the exclusion of other Muscicapidae. Some or all members of the genera *Cinclidium, Ficedula, Myiomela, Myophonens* and *Tarsiger* also possess blue upperparts, but they do not belong to the *Cyornis–Niltava* group. Hence the name 'Niltavinae' is a *nomen nudum* and at present it is not available.

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# A new name for the Montserrat Forest Thrush

*by Dario Zuccon*

*Received 6 January 2011*

Two independent studies analysed phylogenetic relationships in the genus *Turdus* and related taxa, showing that the genera *Cichlherminia*, *Nesocichla* and *Platycichla* are deeply nested within *Turdus* and should be merged in the latter (Voelker *et al.* 2007, Nylander *et al.* 2008).

The subspecies of Forest Thrush endemic to Montserrat Island has consistently been recognised as a valid taxon (Sharpe 1903, Hellmayr 1934, Bond 1956, Ripley 1964, Clement & Hathway 2000, Dickinson 2003, Collar 2005) and is currently known as *Cichlherminia lherminieri lawrencii* Cory, 1891 (original combination *Cichlherminia lawrencii* Cory, 1891). With the merging of *Cichlherminia* in *Turdus*, the name *lawrencii* becomes preoccupied by *Turdus lawrencii* Coues, 1880. No junior synonyms exist for the Montserrat Forest Thrush and I propose:

## *Turdus lherminieri montserrati* nom. nov.

as a replacement name for *Cichlherminia lawrencii* Cory, 1891. The name refers to the subspecies' range.

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# Little Wood Rail *Aramides mangle*, a Brazilian endemic, found in French Guiana

*by Johan Ingels, Maxime Dechelle & Rasmus Bøgh*

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Little Wood Rail *Aramides mangle* is the smallest (*c.*30 cm) of the seven Neotropical *Aramides* species. It occurs in coastal eastern Brazil between approximately 00°S and 25°S, i.e. from north-east Pará to south-east Paraná (Taylor & van Perlo 1998). An early claim of its occurrence as far north as Guyana lacked evidence (Burmeister 1856), and following Peters (1934) and Hellmayr & Conover (1942) subsequent authors have considered Little Wood Rail as a Brazilian endemic (Meyer de Schauensee 1970, Taylor 1996, Taylor & van Perlo 1998).

Figure 1. Little Wood Rail *Aramides mangle*, Kourou River, Kourou, French Guiana, 10 July 2010 (Maxime Dechelle)

*A. mangle* occurs in dense coastal mangroves, swamps and nearby forest, although it also occurs inland, with records from humid highland forest in the Serra do Mar and northern Ceará, and in dense *caatinga*, sometimes far from water, in the interior from Ceará to Bahia (Sick 1993, Taylor 1996, Taylor & van Berlo 1998, Albano & Girão 2008, Redies 2010). However, it is uncertain if the species is resident in the Caatinga, or whether it departs in the dry season, as this wood rail probably undertakes local migrations (Sick 1993, Redies 2010).

Just one species of *Aramides* is known in French Guiana. Grey-necked Wood Rail *A. cajanea* is a large wood rail (*c.*40 cm), widespread but local in marshy areas and along creeks in lowland forest. Its head to upper mantle and breast is grey, and there is a faint to distinct rufous patch on the occiput (Tostain *et al.* 1992, Taylor 1996, Taylor & van Perlo 1998). Undocumented records of the small Rufous-necked Wood Rail *A. axillaris* (Tostain *et al.* 1992) are now considered unreliable and the species is excluded from the avifauna of French Guiana by the Comité d'Homologation de Guyane (CHG) (O. Claessens & A. Renaudier pers. comm.). *A. axillaris* is only slightly larger than Little Wood Rail, and its head, neck and ventral plumage are typically bright chestnut.

On 10 July 2010 at 10.47 h, MD photographed a wood rail (Fig. 1) foraging at low tide in mangrove along the Kourou River near the port in the centre of Kourou (05°09'N, 52°39'W), *c.*1 km from the Atlantic coast. MD identified the bird as a Grey-necked Wood Rail, but when RB saw the photographs, he identified it as *A. mangle*, which was confirmed by JI. Little Wood Rail differs from all congeners in having a red base to the maxilla, and in the grey hindneck and rufous lower foreneck. These are the main diagnostic characters for identification. Moreover, rufous on the belly extending to the lower breast and therefore not forming a clear-cut 'band' distinguishes it from Grey-necked Wood Rail. The record was validated by the CHG as the first documented record of Little Wood Rail for French Guiana and the Guiana Shield (O. Claessens & A. Renaudier pers. comm.).

The discovery of Little Wood Rail so far north of the Amazon was most unexpected. The distance along the Atlantic coast between its northernmost Brazilian locality, Vista Alegre do Pará, near Marapanim (00°39'S, 47°45'W) in extreme north-east Pará (Novaes 1981), and Kourou at 05°N in French Guiana, is *c.*900 km. Further observations are needed to establish whether resident populations of Little Wood Rail occur in Amapá (Brazil) and French Guiana, or whether this bird was a vagrant. The latter hypothesis seems more likely, considering the species' known range. If so, the occurrence of a Little Wood Rail so far from its breeding grounds and north of the Amazon illustrates the species' dispersive capabilities, as already noted for other Rallidae (Remsen & Parker 1990). Should a resident population in French Guiana be confirmed, then this *Aramides* would no longer be a Brazilian endemic.

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# Unusual offshore record of Snail Kite *Rostrhamus sociabilis* on Malpelo Island, Colombia, Eastern Tropical Pacific

*by Mateo López-Victoria, Oliver Kroll & Felipe A. Estela*

*Received 1 February 2011*

Snail Kite *Rostrhamus sociabilis* is a highly specialised predator that feeds primarily on freshwater snails of the genus *Pomacea*, but occasionally on other prey (i.e. *Marissa* snails, crayfish and freshwater crabs: Sykes *et al.* 1995). The species is widely distributed in wetlands from Florida to northern Argentina. Although Snail Kite is not considered a long-distance migrant, there are well-supported data concerning dispersal events on the Florida peninsula and between Florida and Cuba (Takekawa & Beissinger 1989, Angehr 1999). Furthermore, in many areas it has established new populations prior to significant changes in the ecological integrity of the wetlands and the appearance of *Pomacea*. Most ecological changes are related to pollution or other strong perturbations, which promote the presence of freshwaters snails that live in water highly saturated with organic loads (Angehr 1999, Estela & Naranjo 2005).

Malpelo Island is 1.6 km long, with a max. width of 700 m and max. altitude of 300 m, and lacks any permanent fresh water. The island lies *c*.380 km off the Pacific coast of Colombia, it is of volcanic origin and is almost completely devoid of plants (López-Victoria & Rozo 2006). Although species richness is low, the island harbours three endemic lizard species, one endemic land crab, and >80 other invertebrates, including two species of land snails (cf. Subulinidae and cf. Thysanophoridae). Seven seabird species breed and 53 other bird species have been recorded, some only as vagrants (López-Victoria & Estela 2007).

During a field trip to Malpelo on 13–17 February 2010, MLV & OK observed six Snail Kites (Fig. 1). They were positively identified by their red irides, white under- and uppertail-coverts, long slender and strongly decurved black bill, longish square tail, and orange-red legs and cere in males (Fig. 1b). The kites started flying around at 09.00 h daily, when air temperatures increased, and remained on or above the summit of the island most of the day. We climbed Malpelo's peaks on four occasions to photograph them and

to document their various plumages. We regularly observed the kites drinking water at a small temporal pond near the summit, at 250 m elevation. During more than eight hours of observations we never saw any of the kites feeding on the ground, but we photographed two individuals carrying land crabs in their talons, which suggests they were feeding on them (Fig. 1c). Five months later (8 July to 4 August 2010) FAE returned to Malpelo but did not observe any Snail Kites.

Recent records of Snail Kites outside the species' previously known range have been related to climatic conditions (e.g., in South Carolina: Dias 2007). However, the greater number of 'accidental' occurrences could also be due to the species' increasing populations, or to a larger numbers of observers over wider areas (i.e. in El Salvador: Herrera *et al.* 2006). Although Peregrine Falcon *Falco peregrinus* and Osprey *Pandion haliaetus* have been recorded on Malpelo during the boreal winter and on many other islands (López-Victoria & Estela 2007), this is the first record of Snail Kite on an oceanic island in the Pacific. It also provides an example of how this specialised bird species survives, at least during migration or for short periods, feeding on alternative prey available on remote islands.

Figure 1. Snail Kites *Rostrhamus sociabilis* on Malpelo Island, Colombia: (a) juvenile in flight, (b) adult male at rest with a Nazca Booby *Sula granti* in the background, and (c) female in flight carrying a land crab (Mateo López-Victoria)

Small, highly isolated oceanic islands have low species richness and few, if any, sources of fresh water (Whittaker & Fernández-Palacios 2007), thus Snail Kites are unlikely to establish viable local populations. Requirements for a species to successfully colonise a remote island include, among others: (a) sufficient individuals of both sexes to guarantee genetic variability to maintain the incipient population, (b) sufficient suitable food, and (c) suitable environmental conditions for breeding (Whittaker & Fernández-Palacios 2007).

We consider that the birds we recorded on Mapelo were migrants, probably en route from Central America to South America, which were displaced from the main overland route by a storm or strong winds. Similar, long-distance accidental dispersal of other raptors has been suggested as the main process responsible for species diversification ('migration dosing'; Bildstein 2004). To our knowledge, this record on Malpelo is the longest

movement recorded for Snail Kite, and it illustrates an example of long-distance dispersal to habitat unsuitable for the species.

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# Bismarck Crow *Corvus* (*orru*) *insularis* warrants species status

*by Guy Dutson, Phil Gregory & Walter Boles*

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The crow on Papua New Guinea's Bismarck islands (New Britain and New Ireland, including Umboi, Sakar, Witu, Lolobau, Watom, Duke of York, New Hanover and Djaul) has conventionally been treated as a subspecies of Torresian Crow *Corvus orru insularis* (e.g., Goodwin 1976, Madge & Burn 1994). However, Finch & McKean (1987) and Storer & Eastwood (1991) proposed that *C. o. insularis* is closer to Bougainville Crow *C. meeki* than

to *C. orru*, and Jones & Lambley (1987) treated it as a separate species. Based on our field experience, examination of specimens in the Australian Museum, Sydney, and The Natural History Museum, Tring (including 17 *insularis*), and the biometrics in Rowley (1970), we here compare *C. o. insularis* with New Guinea *C. o. orru* and Australian *C. o. cecilae*, which is similar but slightly longer tailed and winged. *C. o. latirostris* of Tanimbar and Babar is conventionally included within *C. orru* but Madge & Burn (1994) and White & Bruce (1986) suggested that *C. o. latirostris* may be a separate species; we are unfamiliar with this taxon in the field, and it is not considered further here.

The most distinctive feature of *C. o. insularis* is its call. Most commonly, it repeats short nasal calls e.g., *khah*, *kor* or *khot*; in many areas, its local name is *kotkot*. These calls sound very different from typical calls of *C. o. orru*, being higher pitched, shorter, more clipped and more rapidly repeated. Moreover, *C. o. insularis* very rarely gives longer more drawn-out calls at the end of series, as commonly heard from *C. o. orru*. As with *C. o. orru*, it has a range of other less common calls, including a much deeper raven-like repeated *ank* and, rarely, a popping call, and slurred *khe-aarh*. Typical *C. o. insularis* calls are shorter and less rolling than those of *C. meeki*, which in turn are distinct from those of White-billed Crow *C. woodfordi* on islands east of Bougainville.

*C. o. insularis* has a relatively short tail. The wing/tail ratio averages 2.0 ($n$ = 9; SD = 0.083) whereas that of *C. o. latirostris* is 1.82 ($n$ = 2; SD = 0.02), *C. o. orru* is 1.86 ($n$ = 21; SD not given but estimated as 0.04 from data in Rowley 1970), *C. o. cecilae* is 1.80 ($n$ = 162; SD estimated as 0.06) and *C. meeki* is 2.67 ($n$ = 2; SD = 0.01).

*C. o. insularis* has pale grey feather bases, intermediate between the clean white bases of *C. o. orru* and *C. o. cecilae*, and the grey bases of *C. meeki* and various Australian 'raven' species, as well as a slightly but consistently different wing formula from *C. o. orru* and *C. o. cecilae*. The bill dimensions, structure and extent of feathering over the bill and proportions of the throat hackles are similar to *C. o. orru* and *C. o. cecilae*. *C. o. insularis* has pale blue irides at all ages (Heinroth 1903; pers. obs.). Juvenile and immature *C. o. orru* and *C. o. cecilae* have dark irides but adults possess white irides, or these are pale blue in parts of western and northern New Guinea (Coates 2001). Adult *C. meeki* has dark brown irides, whereas juveniles have pale blue-grey to mid-brown irides. All *C. woodfordi* specimens and observations, which exclude young juveniles, have pale blue or white irides.

The flight action of *C. o. insularis* is distinctive, with rather deep but curiously hesitant wingbeats interspersed with short glides on wings held below the body, unlike the more typically crow-like flight of *C. o. orru* and *C. o. cecilae*, and the fluttering flight with shallow wingbeats of *C. meeki* and *C. woodfordi*.

*C. o. insularis* is common in edge and open habitats including towns and oil palm plantations, habitats used by *C. o. orru*, *C. o. cecilae* and occasionally *C. meeki*, but rare in closed-canopy forest, the primary habitat of *C. meeki* and *C. woodfordi*. It forages in the canopy and on the ground, whereas *C. o. orru* and *C. o. cecilae* forage mostly on the ground, and *C. meeki* and *C. woodfordi* feed exclusively in the canopy. *C. o. insularis* often roosts communally in large numbers as evidenced by large pre-roost flights. *C. o. orru* and *C. o. cecilae* often occur in small foraging flocks and sometimes larger roosting flocks; *C. meeki* and *C. woodfordi* do not flock. All of these taxa often shuffle their wings on alighting, in a similar fashion to cuckoo-shrikes *Coracina* spp. An equivalent of the display flight of *cecilae* has not been recorded for *C. o. orru*, *C. o. insularis*, *C. meeki* or *C. woodfordi*.

*C. o. insularis* is the sole host for three species of *Myrsidea* feather mites; one other species is known from *C. o. orru* and two from *C. o. cecilae* (Klockenhoff 1980).

Tobias *et al.* (2010) proposed an objective scoring system for taxa of unknown species status. Although calls have not been subject to detailed analysis in this case, they are

estimated as scoring 2, wing / tail ratio as 2, plumage differences as 2+2, and ecological and behavioural differences as 0. The total score of 8 is above the threshold of 7 which usually indicates full species status. Given the range of differences discussed above, which are of a similar magnitude to those between various Australian *Corvus* species (Rowley 1970), we propose that *C. o. insularis* is best treated as a full species. This proposal was already accepted by dos Anjos *et al.* (2009) and subsequently Clements *et al.* (2011) and the IOC (Gill & Donsker 2010).

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# The authorship of the generic name *Argusianus*

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Temminck (1807: 149) employed the name *Argus* for his species *Argus giganteus*, a synonym of *Phasianus argus* Linnaeus, 1766. *Argus* Temminck, 1807, is, however, a junior homonym of *Argus* Bohadsch, 1761 [Gastropoda] and *Argus* Scopoli, 1777 [Lepidoptera]. A new name was therefore required. For many years, at least since Ogilvie-Grant's (1893) volume of the *Catalogue of birds in the British Museum* to Dickinson (2003: 61), this has usually

been cited as *Argusianus* Rafinesque, 1815, but as long ago as 1908 Richmond demonstrated that this was erroneous. The case is here reviewed.

## History

Rafinesque, on p. 69 of his *Analyse de la nature*, used the name '*Argus*' as a *nomen nudum*, placing it between *Phasianus* and *Tetrao*. In his famous unpublished card index, now housed at the National Museum of Natural History in Washington DC, Richmond wrote 'Possibly *Phas. Argus* -' (i.e. *Phasianus argus* Linnaeus, 1766), but this was pure conjecture. Later, on p. 219 (Additions et Corrections), Rafinesque employed the name *Argusianus* for the first time. It, too, is a *nomen nudum* as it is introduced merely as a new name for '*Argus* R[afinesque]'. With no diagnosis, included species or indication to other authors, there is no proof that this was ever intended as a *nomen novum* for *Argus* Temminck, 1807.

Billberg, recognising that *Argus* Temminck, 1807, was unavailable, introduced *Bremus* Billberg, 1828. It transpired, however, that this name was *also* unavailable, being the junior homonym of *Bremus* Panzer, 1805 [Hymenoptera]. Richmond's card on this states 'as there is no other available name, we shall have to adopt *Argusianus* from Gray 1855, who appears to have been the first author to employ it in an ~~intellig~~ [*sic*] orthodox manner.' One is left to speculate whether the humour in this statement was intentional, but it represents one of Richmond's rare slips in that an earlier introduction by G. R. Gray existed, although in fairness it is not at all easy to recognise. Both Schulze *et al.* (1926: 270) and Neave (1939: 291) in their respective nomenclators credit the first valid use of *Argusianus* to Gray's *Genera of birds*, where in vol. 3, appendix p. 47, we find a footnote to the index entry for *Argusianus*, [p.] 496, which reads 'Rafinesque (1815). Synon[ymous]. with *Argus*.' While this may seem insubstantial by modern standards, it must be taken in conjunction with the text to *Argus* Temm[inck]. on p. [496] (the pages were retroactively numbered by the index). There, Gray stated: 'The magnificent type of this genus is found in the dense forests of the Indian Archipelago, where it lives in pairs. *A. giganteus* Temm. — *Phasianus argus* Linn.' This is quite sufficient to link *Argusianus* with a type species by monotypy. It should be noted that the name *Argusianus* itself does not appear on p. [496] and that, therefore, 1849—the date of the appendix, part 49—and not 1845 for part 18 (Zimmer 1926: 269), is the correct date for the establishment of this genus.

## Conclusion

The following then should be taken as the point of introduction of *Argusianus*, with the correct citation as follows:

***Argusianus*** G. R. Gray, 1849. *The genera of birds* [vol. 3], pt. 49, appendix p. 47.

Type by monotypy, *A[rgus]. giganteus* Temm[inck]. = *Phasianus argus* Linnaeus, 1766.

*Argusianus argus* (Linnaeus, 1766).

*Nomen novum* for *Argus* Temminck, 1807, *nec Argus* Bohadsch, 1761 [Gastropoda], *nec Argus* Scopoli, 1777 [Lepidoptera].

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# The nest and eggs of Margaret's Batis *Batis margaritae*

*by Michael S. L. Mills & Alexandre Vaz*

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Margaret's Batis *Batis margaritae* was first collected, by R. & L. Boulton, on 24 February 1931, at Mount Moco, Angola (Boulton 1934). Subsequently, the species was also found at one locality in the southern Democratic Republic of Congo (Schouteden 1971) and the species is fairly widespread in north-west Zambia where it can be common in *Cryptosepalum* forest (Dowsett *et al.* 2008). However, little is known of its behaviour, and the nest and eggs have never been described (Urban *et al.* 1997, Dowsett *et al.* 2008).

At around midday on 17 July 2010 we were in the largest forest patch on Mount Moco, known as Luanda (Mills *et al.* 2011), when we spotted a small, cup-shaped nest in the fork of a sapling within an area of relatively dense undergrowth at 2,390 m (12°42'557"S, 15°17'711"E). The nest contained two eggs. We retreated *c.*10 m and waited motionless in the undergrowth. After a couple of minutes a pair of Margaret's Batis (Fig. 1) approached the nest. They remained within 20 m for 5–10 minutes, after which one bird briefly perched on the nest, confirming its ownership. To minimise disturbance, we briefly photographed the nest and eggs after the birds had moved away, and then departed.

Twenty-one days later, on 7 August, we revisited the nest but found it empty. There were no obvious signs of predation or disturbance, making us uncertain as to whether or not the attempt had been successful. With a typical fledging period of 15–17 days for *Batis* spp. (Tarboton 2001), it is possible that the eggs hatched shortly after our observation and that the young had fledged shortly before our second visit. Because the nest was no longer in use, we collected it together with the branch on which it was placed, and have deposited it in The Natural History Museum, Tring, UK (NHM N/2011.2.1).

Figure 1 (left). Adult female Margaret's Batis *Batis margaritae* near its nest, Luanda forest, Mount Moco, Angola, July 2010 (A. Vaz)

Figure 2 (below, left). Nest of Margaret's Batis *Batis margaritae*, Luanda forest, Mount Moco, Angola, July 2010 (A. Vaz)

Figure 3 (below, right). Nest and eggs of Margaret's Batis *Batis margaritae*, Luanda forest, Mount Moco, Angola, July 2010 (A. Vaz)

## Description of the nest and eggs

Following the nomenclature of Simon & Pacheco (2005), the nest can be described as a 'high cup/fork', since nest height is greater than diameter, and it was placed in the fork of a sapling (Fig. 2).

***Location.***—The nest was placed *c.*90 cm above the ground, in the fork of a sapling *c.*1 m tall. The sapling was 7–8 mm in diameter at the fork. The location was in dense forest undergrowth below closed-canopy Afromontane forest, *c.*20 m from the forest edge.

***Clutch size.***—Two eggs; although we are uncertain if this was a complete clutch, the usual clutch size in most *Batis* spp. is two eggs (Tarboton 2001).

***Eggs.***—Not handled, so not measured. Description taken from photographs (Fig. 3). Background colour creamy white, with dark and pale brown blotching scattered over the entire surface, albeit concentrated at the larger end. Markings similar to those of other *Batis* spp. (Tarboton 2001).

*Nest materials.*—The inside of the cup was lined with very fine grass, whereas the outer surface comprised fine grass and mosses bound with spider's web, and covered with small pieces of lichen attached with spider's web. The construction seems typical for members of the genus *Batis* (Tarboton 2001).

*Dimensions.*—Height 9.0 cm, depth 3.0 cm, outer diameter / width 8.0 cm, outer diameter / breadth 7.0 cm, inner diameter / width 5.0 cm, and inner diameter / breadth 4.5 cm. These dimensions are very similar to those of other *Batis* (Tarboton 2001).

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# Status of wood rails (*Aramides*) in mangroves in north-west Peru

*by Gary R. Graves*

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Wood rails (*Aramides*) were unknown from the Pacific coast of Peru until Graves (1982) reported a sight record of a Brown Wood Rail *Aramides wolfi* in mangroves at Puerto Pizarro, dpto. Tumbes. Here I review this report, the only record for Peru, and update the status of *Aramides* wood rails in Tumbes.

On 26 September 1977, I encountered a wood rail at low tide at the margin of extensive mangrove forest. I wrote a description and penned a drawing of the rail in my notes later that afternoon (Graves 1982: 237): 'I cornered the rail in an isolated mangrove and approached it within 3 meters. The chicken-sized, "*Aramides*-type" rail had a rather stout yellowish bill, dark olivaceous brown upperparts and pale gray throat. The unbarred breast, belly, and flanks were brown, slightly lighter in shade than the upperparts; the iris

was dull reddish-orange and the legs were dusky coral pink. After clambering on the stilted mangrove roots for a minute or so, the rail ran across the mud flat, taking flight just before it reached the mangroves. The primaries were reddish-brown.'

At the time, there were no previous records of wood rails along the Pacific coast of Peru, but both *A. wolfi* and Rufous-necked Wood Rail *A. axillaris* had been reported from south-west Ecuador (Chapman 1926, Meyer de Schauensee 1970, Ripley, 1977). In fact, both species had been collected at La Chonta (03°35'S, 79°53'W), prov. El Oro, Ecuador (Chapman 1926), *c.*57 km east of Puerto Pizarro. On returning to the USA several months after the sighting, I compared my notes with plumage descriptions and Landsdowne's illustrations of both species in the recently published *Rails of the world* (Ripley 1977). In the era prior to field guides, Landsdowne was the first to illustrate *A. wolfi*, which was rare in museum collections and has a restricted geographic range in Ecuador (Ridgely & Greenfield 2001) and Colombia (Hilty & Brown 1986). The Puerto Pizarro wood rail resembled Landsdowne's illustration and Ripley's description of *A. wolfi* but bore little similarity to those of *A. axillaris*. However, Ripley's monograph did not describe or illustrate either species' immature plumage. My identification was based largely on the illustrations in Ripley's monograph. Recent photographs of an adult *A. wolfi* (Karubian *et al.* 2011) show that Landsdowne's depiction of soft-part colours based on old museum specimens was inaccurate in lacking a prominent fleshy red orbital ring and red spot at the rictus. These soft-part characters may be absent in the immature plumages of *A. wolfi*, which are undescribed. In any case, the Puerto Pizarro wood rail lacked a red rictal spot and fleshy orbital ring, indicating that it was not an adult *A. wolfi*. To add to the confusion, some immature plumages of *A. axillaris* (Sharpe 1894) superficially resemble *A. wolfi*, which is only slightly larger in linear dimensions (Ripley 1977). Given the uncertain appearance of immature plumages of *A. wolfi*, and the superficial similarities between *A. wolfi* and immature plumages of *A. axillaris*, my Puerto Pizarro sighting provided insufficient evidence for the occurrence of *A. wolfi* in Peru.

The status of *Aramides* in north-west Peru has been clarified considerably in the past 30 years. In February 1986, several adult *A. axillaris* with downy chicks were observed in a wooded ravine at El Caucho, dpto. Tumbes (Parker *et al.* 1995). In July 1988, *A. axillaris* was found to be relatively common in the mangroves of Puerto Pizarro, dpto. Tumbes, where as many as nine were counted simultaneously as they foraged on exposed mudflats (Parker *et al.* 1995). A photograph and several additional sight records (July 1995–April 2000) were published by Valqui & Walker (2002), who noted that 4,814 ha of mangroves remained in dpto. Tumbes. More than half of this area (2,972 ha) is now protected within the Santuario Nacional Manglares de Tumbes. The presence of *A. axillaris* in Peru was finally documented by specimen evidence in 2009 when a joint expedition by the Museum of Natural Sciences of Louisiana State University, Baton Rouge, the Centro de Ornitología y Biodiversidad, Lima (CORBIDI), and the National Museum of Natural History, Washington DC (USNM), found the species to be common in mangrove forest near the mouth of the río Tumbes (see specimens).

No additional records of *A. wolfi* have been reported from dpto. Tumbes or in the adjacent Ecuadorian provinces of El Oro and Loja (Ridgely & Greenfield, 2001). However, the species was sighted as recently as 1989 in mangroves at Manglares Churute Ecological Reserve, prov. Guayas (02°30'S, 49°42'W) (Ridgely & Greenfield 2001), *c.*120 km north-east of the mouth of the río Tumbes.

***Specimens***: (a) LSUMZ uncatalogued, male, 1 June 2009, coll. Brian K. Schmidt (prep. C. Sánchez 167), *c.*29 km north-east of Tumbes (03°27'S, 80°18'W), 260 g; (b) USNM 643854, male, 2 June 2009, coll. Brian K. Schmidt, *c.*29 km north-east of Tumbes (03°27'S, 80°18'W), 218 g; (c) CORBIDI uncatalogued, male, 13 June 2009, coll. Thomas Valqui, Santuario

Nacional de Manglares de Tumbes (03°27'S, 80°17'W), 140 g; (d) CORBIDI uncatalogued, male, 26 June 2009, coll. Jacob R. Saucier, Santuario Nacional de Manglares de Tumbes (03°25'S, 80°17'W), 133 g; (e) USNM 643934, male, 27 June 2009, coll. Christopher C. Milensky, Santuario Nacional de Manglares de Tumbes (03°25'S, 80°19'W), 230 g; (f) CORBIDI uncatalogued, male, 26 July 2009, coll. Jacob R. Saucier, Santuario Nacional de Manglares de Tumbes (03°25'S, 80°19'W), 210 g; (g) LSUMZ uncatalogued, female, 26 July 2009, coll. Walter Vargas (prep. D. Schmitt 6516), Santuario Nacional Los Manglares de Tumbes (03°29'S, 80°18'W), 260 g. All specimens are in immature plumage.

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# First record of Blyth's Pipit *Anthus godlewskii* for Micronesia

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The systematic recording of vagrants from remote oceanic islands can offer unique insights into rates of dispersal, colonisation (and subsequent endemism) and shed light on competing hypotheses used to explain vagrancy events. Pipits (*Anthus*) appear to be amongst those avian genera most prone to long-distance vagrancy, being frequently recorded as inter-continental or oceanic island vagrants. Well-documented records of 'extreme vagrancy' in this genus include Olive-backed Pipits *A. hodgsoni* in the Northwestern Hawaiian Islands (Pyle 1984) and Mexico (Hamilton *et al.* 2000), and Red-throated Pipits *A. cervinus* in Ecuador (Brinkhuizen *et al.* 2010) and Australia (Carter 1997).

Here we present a description and photographic documentation for the first record of Blyth's Pipit *A. godlewskii* for Micronesia and the Pacific, and discuss its significance in understanding avian vagrancy.

## Blyth's Pipit on Palau

The Palau Islands are the westernmost Micronesian archipelago and consist of more than 350 volcanic and coralline islands. The first detailed treatment of their avifauna was prepared by Baker (1951), while a handful of other reports, e.g., Pratt *et al.* (1980), Engbring (1983, 1988, 1992), and Pratt & Etpison (2008) have provided additional information on resident breeding species, and others have contributed new records of migrants and vagrants. In the most recent checklist of Micronesian birds, Wiles (2005) reported 148 species in Palau, including 50 resident breeders, 67 migrants and 31 vagrants. More recently, VanderWerf *et al.* (2006) and Buden & Retogral (2010) each added a presumed vagrant to the list, and Pratt *et al.* (2010) added at least ten new vagrants or rare migrants, and reassigned a previously recognised vagrant—Asian House Martin *Delichon dasypus*—to hypothetical status. In April–May 2005, surveys focusing on Palau's resident birdlife were organised by the Palau Conservation Society and conducted by EAV, G. J. Wiles, A. P. Marshall and M. Knecht (VanderWerf *et al.* 2007). Incidental observations of migrant and vagrant taxa observed were published in VanderWerf *et al.* (2006). The most important concerned a Richard's Pipit *Anthus richardii* present at Malakal sewage treatment ponds (07°19′41.88″N, 134°27′03.91″E) on 23 and 28 April 2005. Two photographs and a brief description were presented in VanderWerf *et al.* (2006). These authors solicited opinions on the identity of the bird and these favoured Richard's Pipit (a single vote for Blyth's Pipit *A. godlewskii* from P. Alström came too late for publication as such). This represented the first record of any 'large pipit' of the Richard's complex in Micronesia. The record went unquestioned until ACL independently came across VanderWerf *et al.* (2006), in 2011, while undertaking a literature survey of records of Siberian vagrants in the Pacific. Reasonably familiar with the species from the Indian Subcontinent and as an autumn vagrant to the UK, he immediately suspected that the bird was a Blyth's Pipit based on structural features evident in the two low-resolution images published. After soliciting the original images from EAV and correspondence with colleagues also familiar with the species, a consensus was reached that the bird was identifiable as the first Blyth's Pipit for Micronesia and the easternmost record to date.

## Field identification

It would be near-heretical to say that the identification of Blyth's Pipit is 'straightforward', but increased experience of the species amongst Holarctic ornithologists has permitted refinement of identification criteria that has led to field identification of autumn vagrants in Europe—once thought impossible (e.g. Baker 1926)—to become relatively routine. The bird initially attracted ACL's attention by its distinctive compact jizz—short tail, short cone-shaped (deep-based) bill, small head, short legs, and apparently short hind-toe, which combine to give the bird a structure closer to Tree Pipit *A. trivialis* than Richard's Pipit. However, many of these structural features are also shown by smaller races of Richard's Pipits such as southern Chinese *A. r. sinensis* (Alström & Mild 2003). The higher resolution photographs made it possible to confirm these and other 'pro-Blyth's' features. The bird exhibits the classic 'capped appearance' typical of Blyth's, the result of the densely streaked crown and nape. The streaks are evenly spaced and lack the 'dark coagulation' (*sensu* Dupriez & Millington 2010) of Richard's Pipit. The supercilium is rather short, and is clean above and

Figures 1–3. Adult or first-summer Blyth's Pipit *Anthus godlewskii*, Palau, 23 April 2005 (Eric VanderWerf)

Figure 4. Global distribution map of Blyth's Pipit *Anthus godlewskii* with breeding area marked in yellow, wintering area in blue, and countries with extralimital records denoted by red stars. The Palau record is circled.

immediately behind the eye, whereas elsewhere it is sullied buff. The breast is quite heavily streaked but the lower breast and flanks are unmarked, unlike Richard's Pipit, which is often streaked over the flanks. Nor is there any evidence of significant contrast between the coloration of the breast and flanks, as is often the case in Richard's Pipit. Furthermore, spring Richard's Pipits do not exhibit such a strongly streaked mantle and crown, nor are they so sandy overall (P. Adriaens *in litt.* 2011). On the mantle, the broad dark feather centres that afford the bird its streaked appearance are also typical of Blyth's. The precise pattern of the adult median coverts is a diagnostic feature separating the two species, and this individual clearly shows the distinctive 'apricot buff' median covert with a dark 'curly bracket' outline (Dupriez & Millington 2010). The median covert tips form broad creamy wingbars typical of spring Blyth's. The hindclaw is visibly short, approximately the same length as the hind-toe and quite strongly curved; although there is some overlap between Blyth's and Richard's, this individual's relative claw length and curvature suggests Blyth's. Unfortunately, the bird's vocalisations—another diagnostic feature separating the two species—were not sound-recorded, although the call transcription as a soft *chirt* probably better fits Blyth's and could be analogous to the 'type 2' call of Blyth's transcribed by Alström & Mild (2003) as *chep*. Separation from Tawny *A. campestris* and Paddyfield Pipits *A. rufulus* is relatively easy using a combination of structural and plumage features, most obviously the dark lores

of both species. Taken together, the structural and plumage features eliminate all confusion species and establish the identification as an adult or first-summer Blyth's Pipit.

## Vagrancy in Blyth's Pipits

Blyth's Pipit breeds from southern Transbaikalia and eastern Manchuria south to Tibet and winters mainly in the Indian subcontinent and adjacent Myanmar (Alström & Mild 2003). As knowledge of salient field identification criteria has solidified (Williamson 1977, Bradshaw 1994), Blyth's Pipit has become an annual vagrant to Western Europe, with records from all Atlantic / North Sea-facing countries from Norway to Portugal, as well as Switzerland and Finland (Williamson 1977, Fremont 1999, Alström & Mild 2003, Dies *et al.* 2007, Matias *et al.* 2007). Further east, Blyth's Pipits have reached Cyprus, Turkey, Israel, Kuwait and Bahrain (Alström & Mild 2003, Richardson 2008, Slack 2009, Prünte *et al.* 2010), and are sufficiently regular in the United Arab Emirates to be considered a scarce winter visitor (Alström & Mild 2003). East of their regular breeding / wintering range, Blyth's Pipits are vagrants to Japan (Brazil 2009), South Korea (Moores 2007), Taiwan (P. Morris *in litt.* 2011), Thailand (Perlman 2001), Hong Kong (Anon. 2004) and the Andaman Islands (Grimmett *et al.* 1998). Fig. 4 depicts the distribution of these records on a global pseudo-cylindrical projection, together with the species' normal migration route (headings between 170° and 250° from the centroid of the breeding range). This in comparison with birds reaching the Middle East, which must have departed on headings between 270° and 290° (assuming a rhumb line) and those arriving in Europe between 290° and 320°. To the east, departing vagrants must head between 110° (Japan) and 160° (Thailand). This scatter of records in a 'great semi-circle' between 110° and 320° (Fig. 4) mimics the 'normal distribution' of headings frequently found in analysis of ringing recoveries or in Emlen Funnel experiments (e.g. Wernham *et al.* 2002) and is not suggestive of a 'reverse great circle route' as has often been hypothesised to account for Siberian vagrancy (e.g. Rabøl 1976). Hypothetically, this great 'semi-circle' of vagrant records could be 'filled in' if observer coverage increased at high latitudes, showing a scatter of records of vagrants in all compass directions (*cf.* Alerstam 1990, Gilroy & Lees 2003). However, the absence of records of Blyth's and Richard's Pipits from the Alaskan islands (St. Lawrence, Aleutians and the Pribilofs) in this case may be noteworthy. These areas do not lack observer coverage, with teams of experienced observers regularly searching for Siberian vagrants at appropriate seasons. Thus, occurrence patterns of Richard's and Blyth's Pipits show no support for the 'migration shadow' paradigm (*sensu* Cottridge & Vinicombe 1996): a reverse projection of both species' regular migratory trajectories (south and south-west) would take vagrants over northern and eastern Siberia and the Aleutians.

It is also noteworthy that Blyth's and Richard's Pipits (the latter the second commonest Siberian 'vagrant' to Europe after Yellow-browed Warbler *Phylloscopus inornatus*) appear reticent to embark (or poor survivorship) on long over-water crossings. There are no records of either species from any of the oceanic Atlantic Islands (Azores, Madeira, Canary Islands, Faeroes, Jan Mayen) or Iceland, despite records of Yellow-browed Warblers and other scarcer Siberian species on all of these. There are, however, many records from continental islands between Sandøy Ona (Norway) and the Berlengas archipelago (Portugal), which individuals must have made short to moderate oceanic crossings. For example, birds arriving on the Shetland Isles, UK, must make an over-water flight of >300 km from Norway, i.e. considerably less than the 870 km required to make landfall on Palau, but nonetheless demonstrating that long over-water crossings are not beyond the species' physiological capacity. Short of direct experimental manipulation (*cf.* Moore *et al.* 2008) it is difficult to speculate on the physiological capacities for flight in vagrants when it may be a

behavioural reticence to embark on over-water flights rather than physiological incapacity (*cf.* Lees & Gilroy 2009).

Timing-wise, the mid–late April occurrence of the species in Palau (which presumably overwintered locally, rather than being freshly arrived) is not exceptionally late for a wintering bird, as the bulk of the population departs India in late April / early May, and spring (vagrant?) Korean records fall between 30 April and 19 May (Moores 2007). The lack of previous records of Blyth's or Richard's Pipits from Micronesia is probably best attributed to rarity and lack of observer coverage. However, the paucity or lack of records of Blyth's from the broader South-East Asia / Australasian region might also reflect observers' unfamiliarity with the species, which easily could go undetected amidst the commoner Paddyfield and Australian Pipits *A. novaeseelandiae*. The future extralimital occurrence of Blyth's and Richard's Pipits as far south as Australasian 'vagrant traps' such as Ashmore Reef and Christmas Island should thus be considered a possibility.

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# Expansion of the known range of Tawny Piculet *Picumnus fulvescens* including the south bank of the São Francisco River in north-east Brazil

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Tawny Piculet *Picumnus fulvescens* is a small-bodied Picidae, with predominantly tawny-coloured plumage and ferruginous, white-speckled underparts. Males are distinguished from females by the red forehead (Sick 1997). The species is currently listed as Near Threatened, due primarily to extensive and ongoing habitat loss within its range (BirdLife International 2008). The species occurs predominantly in Caatinga scrub, but also in drier forests of the Atlantic Forest domain. Like other piculets, *P. fulvescens* appears relatively tolerant of habitat disturbance, and is often found in second growth, where it feeds on insects, particularly the larvae and pupae of ants (Sick 1997).

*P. fulvescens* is endemic to north-east Brazil, in the northern Caatinga east to the coastal Atlantic Forest. Prior to the present study, the species' known range (*cf.* Ridgely *et al.* 2007) encompassed a relatively limited area parallel to the left (north) bank of the São Francisco River in the states of Alagoas, Ceará, Pernambuco and south-east Piauí (Fig. 1).

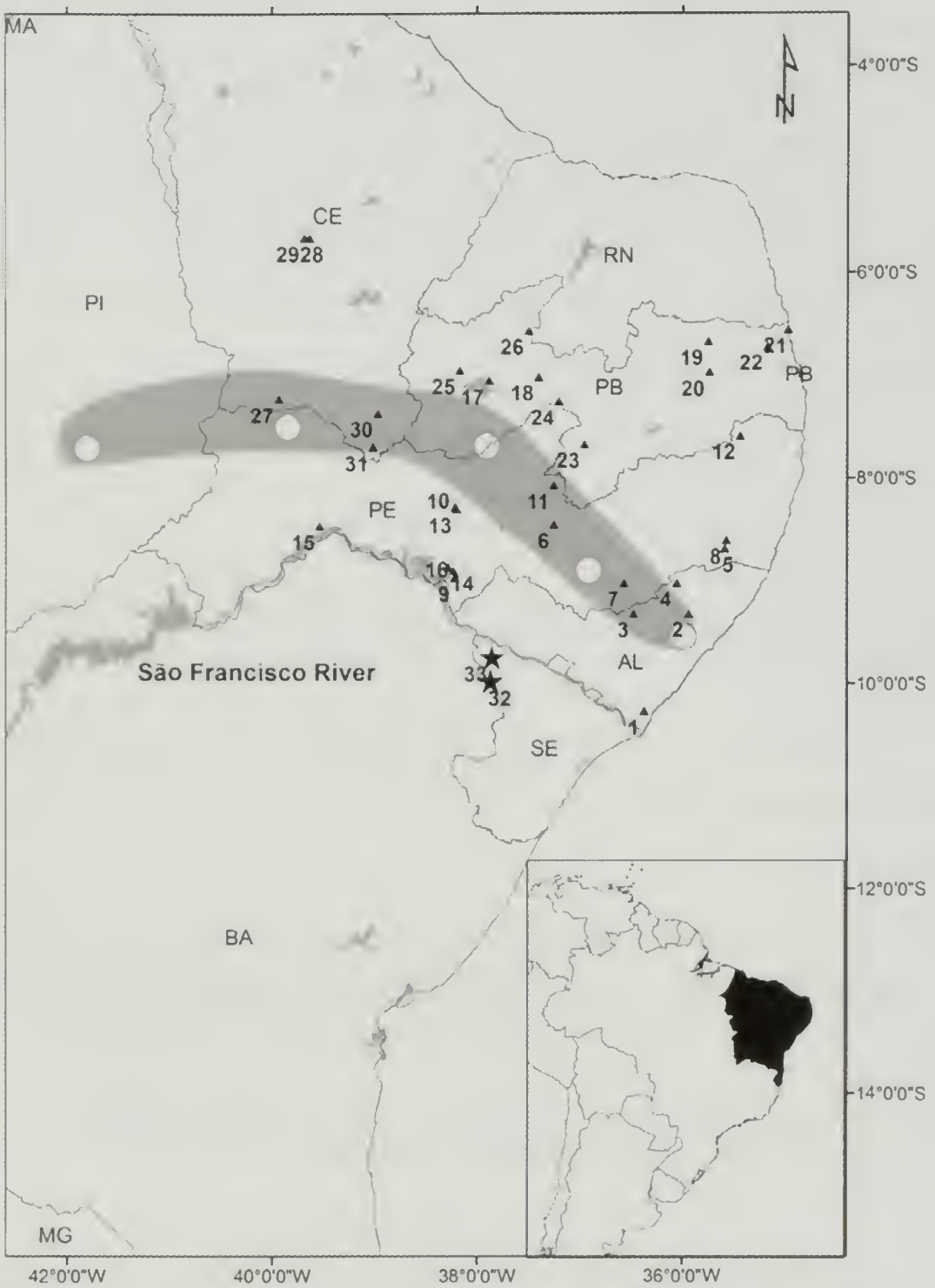


Figure 1. Distribution of Tawny Piculet *Picumnus fulvescens* in north-east Brazil. The grey shaded area is the range defined by Ridgely *et al.* (2007), with localities marked by white circles. Stars represent new localities recorded by the present study and triangles sites mentioned in the literature or based on the Federal University of Pernambuco (UFPE), Recife, ornithology collection. Sites numbered as in Table 1. Brazilian states: AL = Alagoas; BA = Bahia; CE = Ceará; MG = Minas Gerais; PB = Paraíba; PE = Pernambuco; PI = Piauí; RN = Rio Grande do Norte; SE = Sergipe.

During field work at the Serra da Guia in western Sergipe, an adult male *P. fulvescens* (Fig. 2) was captured in a mist-net at 17.00 h on 19 December 2008. The trapping site (09°58′55″S, 37°52′06″W) is located within an enclave of cloud forest in an area of arboreal caatinga, 750 m above sea level. In October 2010, the species was observed during field work at a neighbouring site in western Sergipe (09°45′22″S, 37°51′12″W), 430 m above sea level.

TABLE 1
Geographic localities identified for Tawny Piculet *Picumnus flavescens* during the present study. Brazilian states listed by locality: AL = Alagoas; CE = Ceará; PB = Paraíba; PE = Pernambuco; RN = Rio Grande do Norte; SE = Sergipe. Habitats: CA = Caatinga; AF = Atlantic Forest.

| Site | Locality | Coordinates | Habitat | Source |
|---|---|---|---|---|
| 1 | Piaçabuçu (AL) | 10°16′S, 36°22″W | AF | Cabral *et al.* (2006) |
| 2 | Murici (AL) | 09°19′S, 35°56′W | AF | Roda (2003) |
| 3 | Quebrangulo (AL) | 09°19′S, 36°28′W | AF | Roda (2003) |
| 4 | São José da Laje (AL) | 09°01′S, 36°03′W | AF | Roda (2003) |
| 5 | Palmares (PE) | 08°41′S, 35°35′W | AF | Roda (2003) |
| 6 | Buíque (PE) | 08°27′S, 37°15′W | CA | Farias (2009) |
| 7 | Brejão (PE) | 09°01′S, 36°34′W | CA | Roda & Carlos (2004) |
| 8 | Floresta (PE) | 08°36′S, 35°34′W | AF | UFPE specimen |
| 9 | Sertânia (PE) | 08°58′S, 38°13′W | CA | UFPE specimen |
| 10 | Caruaru (PB) | 08°17′S, 38°13′W | CA | UFPE specimen |
| 11 | Sertânia (PE) | 08°04′S, 37°15′W | CA | UFPE specimen |
| 12 | São Vicente Ferrer (PE) | 07°35′S, 35°26′W | AF | Roda & Carlos (2004) |
| 13 | Betântia (PE) | 08°18′S, 38°12′W | CA | Farias *et al.* (2006) |
| 14 | Icó Mandante (PE) | 08°52′S, 38°17′W | CA | Farias (2007) |
| 15 | Brígida (PE) | 08°28′S, 39°32′W | CA | Farias (2007) |
| 16 | Apolônio Sales (PE) | 08°54′S, 38°14′W | CA | Farias (2007) |
| 17 | Coremas (PB) | 07°03′S, 37°53′W | CA | Pinto & Camargo (1961) |
| 18 | Santa Teresinha (PB) | 07°01′S, 37°24′W | CA | Telino-Júnior *et al.* (2005) |
| 19 | Curimataú (PB) | 06°40′S, 35°45′W | CA | Farias *et al.* (2006) |
| 20 | Areia (PB) | 06°58′S, 35°44′W | CA | H. F. P. Araujo pers. obs. |
| 21 | Mataraca (PB) | 06°33′S, 34°58′W | AF | Araujo *et al.* (2010) |
| 22 | Mamanguape (PB) | 06°43′S, 35°10′W | AF | Almeida & Teixeira (2010) |
| 23 | Sumé (PB) | 07°40′S, 36°57′W | CA | Araujo (2009) |
| 24 | Maturéia (PB) | 07°15′S, 37°12′W | CA | H. F. P. Araujo pers. obs. |
| 25 | São José da Lagoa Tapada (PB) | 06°57′S, 38°10′W | CA | H. F. P. Araujo pers. obs. |
| 26 | Serra Negra (RN) | 06°34′S, 37°30′W | CA | Nascimento (2000) |
| 27 | Chapada do Araripe (CE) | 07°14′S, 39°56′W | CA | Nascimento *et al.* (2000) |
| 28 | Pedra Branca (CE) | 05°40′S, 39°38′W | CA | Olmos *et al.* (2005) |
| 29 | Mombaça (CE) | 05°40′S, 39°41′W | CA | Olmos *et al.* (2005) |
| 30 | Milagres (CE) | 07°22′S, 38°58′W | CA | Olmos *et al.* (2005) |
| 31 | Jati (CE) | 07°42′S, 39°01′W | CA | Olmos *et al.* (2005) |
| 32 | Serra da Guia (SE) | 09°59′S, 37°52′W | CA | Present study |
| 33 | Capim Grosso (SE) | 09°45′S, 37°51′W | CA | Present study |

As these records represent a considerable expansion of the species' known range, we reviewed the literature and consulted specimens in the ornithological collection of the Federal University of Pernambuco (UFPE) in Recife (Table 1). As a result, we identified an additional 28 localities for *P. fulvescens*, extending the limits of its known range in almost all directions, except west and north-west (Fig. 1). Three of these 'new' localities are on the left (north) bank of the São Francisco River in Alagoas and Pernambuco.

In addition to confirming that *P. fulvescens* occurs over a much wider area than previously thought (Ridgely *et al.* 2007), our records from Sergipe confirm its presence south of the São Francisco River, a major physical barrier to small-bodied forest-dwelling birds (Welty & Baptista 1988). It is therefore possible that the species is more widespread in Sergipe and even Bahia, although the current lack of records may at least partially reflect its

rarity therein (Wege & Long 1995, BirdLife International 2008).

The records reported here support the recent reclassification of *P. fulvescens* as Near Threatened rather than Vulnerable (BirdLife International 2008). In fact, this review suggested that the species may even warrant downlisting to Least Concern, and our study would support this, given the considerable expansion of this piculet's range. However, while the species is now known to occur over a relatively wide area, including a number of protected areas, Tawny Piculet does appear to be relatively rare throughout its distribution.

Figure 2. Adult male Tawny Piculet *Picumnus fulvescens*, Serra da Guia, Sergipe, Brazil, 19 December 2008 (Juan Ruiz-Esparza)

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# The availability and validity of the name *Forpus flavicollis* Bertagnolio & Racheli, 2010, for a parrotlet from Colombia

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The recent description of the Yellow-necked Parrotlet *Forpus flavicollis* Bertagnolio & Racheli, 2010, from a photograph taken in Colombia has generated extensive discussion among ornithologists about methods of description through illustrations and lack of deposited type specimens. This note aims to clarify these issues on the availability and validity for this scientific name.

In zoological nomenclature there is an important distinction in the meaning of the technical terms 'availability' and 'validity'. *Available* names are those which must be taken into account as a part of zoological nomenclature. Names that are *not available* effectively do not exist for the purposes of zoological nomenclature; they cannot enter into synonymy or homonymy, and cannot be used as the names of taxa. In contrast, a *valid name* is the name that is currently thought to be the correct name for a taxon, i.e. the oldest *available name* of a name-bearing type specimen that falls with an author's concept of the taxon. Consequently, a name may be available but not valid, e.g. a junior synonym. A valid name must be one selected from the available names in zoological nomenclature. A species should have only one valid name but may have many invalid names, e.g. as junior synonyms. This should not be confused with the technical use of the word valid when applied to publications, when it means the work complies with Art. 8 of the Code (ICZN 1999).

After examining the evidence, it appears that the name *F. flavicollis* is *available* in the technical sense for zoological nomenclature. It meets the requirements of the ICZN Code for establishing a new name. However the *validity* of the name remains a decision for taxonomists. They must decide whether the recognition of this species is justified or not, based on their assessment of taxonomic evidence and their taxonomic philosophy. If it is not felt that this name represents a *valid* species, then the name is a synonym or the taxon may

be considered *nomen dubium* (of unknown or doubtful application). Some ways to establish its validity are explained below in the section 'What happens next to *Forpus flavicollis*?'

More extensive discussions of the distinction between nomenclature and taxonomy, and on the use of illustrations to depict types can be found on the ICZN FAQs: http://iczn.org/category/faqs/frequently-asked-questions. The full text of the fourth edition of the ICZN Code (1999, here referred to as the Code) is available online at the Commission's website http://www.nhm.ac.uk/hosted-sites/iczn/code/. All the Articles mentioned here can be found in full on the website.

## The availability and validity of the name *Forpus flavicollis*

The Code-compliance of descriptions based on photographs of specimens has been discussed at length, both pro and anti (e.g., Polaszek *et al.* 2005, on behalf of the ICZN, Dubois & Nemésio 2007, Donegan 2008, Nemésio 2009). Each instance is slightly different, and in this case it appears that the name *F. flavicollis* is available because:

A photograph or holograph in itself cannot be a type, *but the specimen (or specimens) depicted can be*. This is covered in the ICZN FAQs: http://iczn.org/content/can-photograph-or-holograph-be-type-specimen.

Art. 72.5.6 establishes quite clearly that *new species names can be based on illustrations of syntypes* (as was the case for *F. flavicollis*) as well as on holotypes (Art. 74.4 is particularly pertinent in this context, because lectotype designations from illustrations require that it is possible to establish syntypes through illustrations).

Bertagnolio & Racheli (2010) mention the application of Art. 73.1.4 on the designation of holotypes depicted in illustrations. This is irrelevant here because their types are syntypes.

*A live specimen can be a type* (or part of a name-bearing type in the case of syntype series). Art. 72.5, which defines what can be a type (or part of a type), makes no distinction between live or dead specimens, so a live specimen can be a type. There is no distinction elsewhere in the Code.

Syntypes are explicitly fixed for *F. flavicollis* in Bertagnolio & Racheli 2010, p. 129 (in agreement with Art. 16.4.1).

In my opinion, the syntypes are not extant specimens, so a statement of intent to deposit does not need to be made (Art. 16.4.2).

The Code does not appear to provide a satisfactory definition of the word specimen but the *Chambers Dictionary* (a common reference for UK English) states, among other definitions, that a specimen is an 'object serving for the purpose of study', and this utilitarian definition is in tune with the practical nature of the Code.

If the birds are released and their fate unknown, they can hardly be said to be specimens as they cannot still serve in any practical sense as objects of study, being lost, unlabelled and unrecognisable, and since they are not then specimens, neither can they be extant specimens.

The previous discussion has focused on whether the specimens are 'extant' (existing) or not, rather than whether the types are 'extant specimens' (existing in a way that they can serve as objects of study) and this is what has caused problems. Determining whether a type(s) which has been released live is extant (existing) or not extant at the time of publication in the absence of means to determine its status is often quite impractical, and in my opinion is not what is meant by 'extant specimen' in the Code, whereas determining if it is a an 'extant specimen' is more straightforward.

The distinction of whether the specimen is alive or dead is also of no relevance here, since either can serve as an extant specimen, i.e. extant means existing and dead things can still exist, just as a wooden table exists, although it is no longer part of a living tree.

It is worth noting that the Code has two definitions of extant: (1) for taxa: having living representatives (extant as commonly used by palaeontologists) and (2) of specimens: still in existence. These two definitions are quite different and may be a cause for confusion; for the current question it is clearly definition (2) that is relevant.

## What happens next to *Forpus flavicollis*?

While this means that the name *Forpus flavicollis* Bertagnolio & Racheli, 2010, is an available name, the obvious step to end the current controversy will be to search for specimens and determine if it really is a new or an already known species.

If it is a variety of a species that already has a pre-existing valid name, then the name *F. flavicollis* will become an invalid junior synonym. For instance, it is possible that the bird in question is a common species which has had its appearance altered by being dyed or painted, a practice used to make birds more desirable for sale.

If it is a new species or subspecies and it can be recognised, the name *flavicollis* will remain valid at the appropriate rank with its original authorship.

If it might be a new species or subspecies but an argument can be made that the type is inadequate to permit recognition, then an application can be made to the ICZN to have the types (currently depicted in an illustration) set aside and to designate a neotype based on a specimen which can be deposited in a museum. The validity of the name *F. flavicollis* will then depend on the identity of the neotype.

If no specimens can be found and the placement of the species is unclear, it can be considered invalid as a *nomen dubium* and set aside for taxonomic purposes until the meaning of the name *F. flavicollis* becomes clear.

## Overview

While the description of *Forpus flavicollis* is Code compliant, the description does not appear to have followed good taxonomic practice. A group of specimens in a cage shown in a grainy photo provides very little replicable evidence for other scientists. There are many ways the description could have been improved without depositing type specimens in a museum. The authors should have examined and described the plumage of individuals with reference to a standard colour chart, selected one specimen to serve as a holotype to avoid ambiguity, provided clear figures, taken standard measurements, feather, blood or other tissue samples, or mentioned behavioural or auditory characters even if collecting sonograms was beyond their field capabilities. The authors should also have attempted to keep track of the birds and their subsequent fates. The ICZN cannot prescribe specific taxonomic characters that should be collected for responsible species description, but it should be evident that a minimum amount of information needs to be presented to support the possibility that taxonomy can be pursued as a science with examination and criticism of data, not merely assertion of opinion. Proposals for changes to the Articles for the fifth edition of the Code are always welcome; however, I believe that it is important to retain the option to describe new species using photographs as a practical measure, as has been well argued by Donegan (2008) and others.

Responsibility for good taxonomic practice rests with the authors, editors, their peer reviewers and scientific colleagues. Unfortunately, the ICZN cannot police this because this is outside its remit as explained in the Preface to the fourth edition of the Code. Furthermore, it would be a practical impossibility because there are tens of thousands of nomenclatural acts in zoology per annum, and policing names requires some taxonomic expertise; the ICZN lacks the staff to tackle such problems. The ICZN does recommend that

authors publish nomenclatural acts in mainstream taxonomic journals with robust peer review and that editors act as responsible gatekeepers for publication. This means editors should be informed on the core tenets of good taxonomic and nomenclatural practice. As well as resulting in better papers, this will give the author's research greater status and wider circulation, improving taxonomic practice and decreasing the need for nomenclatural intervention by the ICZN.

## Disclaimer

This paper is an informal view provided for guidance by the ICZN Secretariat enquiry service and is not an official opinion of the Commission.

**Acknowledgements**

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